ENGINEERING NEWS-RECORD

A McGRAW-HILL PUBLICATION

Women's Dormitory

NORTH TEXAS STATE COLLEGE

Denton, Texas

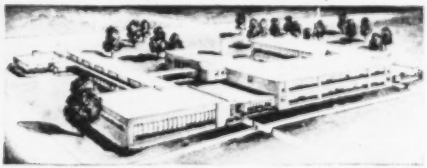
Wilson & Patterson Architects
Ft. Worth, Texas

Yandell, Cowan & Love Engineers
Ft. Worth, Texas

Schrader Plumbing Co. Mechanical Contractor
Austin, Texas

Memorial Stadium

Women's Gymnasium and Classroom Adjunct



Education Building

BYERS Wrought Iron Pipe Safeguards 6 Vital Services at NORTH TEXAS STATE COLLEGE

With an eye to maximum durability and minimum cost-per-year, the designers of these attractive structures at North Texas State College specified genuine wrought iron for all hot and cold water lines, downspouts, gas lines, steam supply and return lines.

In every one of these vital services some degree of corrosion ranging from mild to severe can be expected. And in every one Byers Wrought Iron pipe has established records of continuous, trouble-free service over long periods. Professional recognition of the material's remarkable durability is indicated by its wide-spread use in applications where corrosive attack is expected, and where low-first-cost materials do not provide the desired protection.

If you are contemplating new construction, or extension or replacement of existing piping services, you'll find it profitable to investigate the outstanding performance records of genuine wrought iron. Our bulletin, WROUGHT IRON FOR PIPING SYSTEMS, discusses some of the corrosive conditions found in various services and illustrates a few of the many places where genuine wrought iron pipe has been successfully applied. Write for a copy.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, San Francisco. Export Division: New York, N. Y.

Why

Genuine Wrought Iron Lasts

This notch-fracture test specimen illustrates the unique fibrous structure of genuine wrought iron—which is responsible for the high corrosion resistance of the material. Tiny threads of glass-like silicate slag, distributed through the body of high-purity iron, halt and disperse corrosive attack, and discourage pitting and penetration. They also anchor the initial protective scale, which shields the underlying metal.

BYERS

CORROSION COSTS YOU MORE THAN WROUGHT IRON

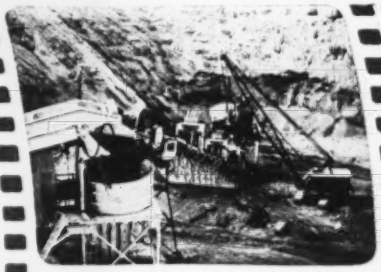
WROUGHT IRON

TUBULAR AND HOT ROLLED PRODUCTS

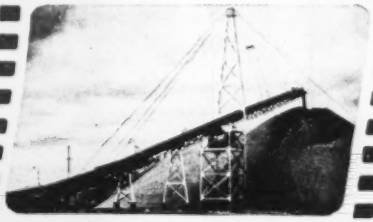
ELECTRIC FURNACE QUALITY ALLOY AND STAINLESS STEEL PRODUCTS

High tonnage —low cost

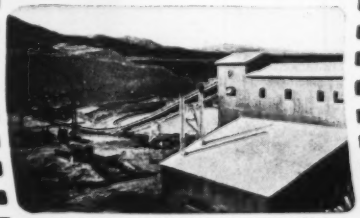
Conveyor Belt System Makes Gold Mine "Pay"



Shovel and Diesel dragline feed ore through grizzly to 60" pendulum conveyor leading to portable crusher at start of 9-belt conveyor system.



Crushed gravel is stock-piled by 700-foot conveyor suspended from tower.



Reclaim tunnel (left) feeds conveyor to washing plant housing jigs, tables, amalgamators and grinders, and classifying units.

Boom stacker transfers sands from washing plant to waste pile.

OUTSTANDING mining operation in the western states, this gold mine has been handling up to 17,000 tons per day of porphyry gold since January 1950—all over a conveyor belt system belted according to the recommendations of the G.T.M.—Goodyear Technical Man.

Secret of the mine's success is the trouble-free performance of Goodyear Style B conveyor belting—designed to handle highly abrasive materials. If you have a bulk-load handling problem, it will pay you to consult the G.T.M. for conveyorization recommendations. See your nearest distributor of Goodyear Industrial Rubber Products, or write Goodyear, Akron 16, Ohio.

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GT-Specified STYLE B CONVEYOR BELT
for HANDLING ABRASIVE MATERIALS
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ENGINEERING NEWS-RECORD

ABP Member ABC

Volume 148 APRIL 10, 1952 No. 15

WALDO G. BOWMAN
Editor

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ROBERT F. BOGER
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When you buy a Northwest you are buying a *real* Rock Shovel—equipment built to meet the grinding punishment of the hardest kind of digging. Your Northwest is rugged and sturdy. It is designed and built to be easily cared for and service records in the hands of many contractors show that maintenance is at the minimum on Northwest machines.

There is a lot of talk of shortages—equipment may not be so easy to get. Keep your Northwest in good condition. There are more hours in your Northwest than a less efficient rig.

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NORTHWEST

SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

Drawing photographed by Veterans' Administration

Penta protects wood in VA hospital

Over one hundred thousand board feet of lumber for the John B. Cochran Memorial Hospital, being built in St. Louis by the Veterans' Administration, will be protected by penta preservative.

Thirty-five thousand board feet of lumber used as sub-sills below windows was pressure-treated to retain 6 pounds of penta preservative per cubic foot. Outside doors, sash, frames and 1,350 outside windows were dip-treated with penta. Penta now is named in more than 50 government specifications.

Monsanto Penta (pentachlorophenol, technical) is a stable chemical produced specifically for wood preservation. It protects against termites and other wood-boring insects. It prevents decay due to fungi. Penta does not leach . . . does not wash away in rain or ground water. Treated with properly formulated Monsanto Penta, wood can be be painted or varnished.

For information on the use of Monsanto Penta, which gives wood durability sufficient to replace hard-to-get steels in many applications, contact the nearest Monsanto Sales Office or write MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 1759-C South Second Street, St. Louis 4, Missouri.

DISTRICT SALES OFFICES: Birmingham, Boston, Charlotte, Chicago, Cincinnati, Cleveland, Detroit, Houston, Los Angeles, New York, Philadelphia, Portland, Ore., San Francisco, Seattle. In Canada, Monsanto Canada Limited, Montreal.

John B. Cochran Memorial Hospital, 500-bed structure being built in St. Louis by the Veterans' Administration. Architect: Technical Service, Veterans' Administration, Washington, D. C. Contractor: Del E. Webb Construction Co., Phoenix, Ariz., and Los Angeles, Calif. Wood Treaters: Associated Wood Preservers and Gravois Planing Mill, both of St. Louis.

PENTA

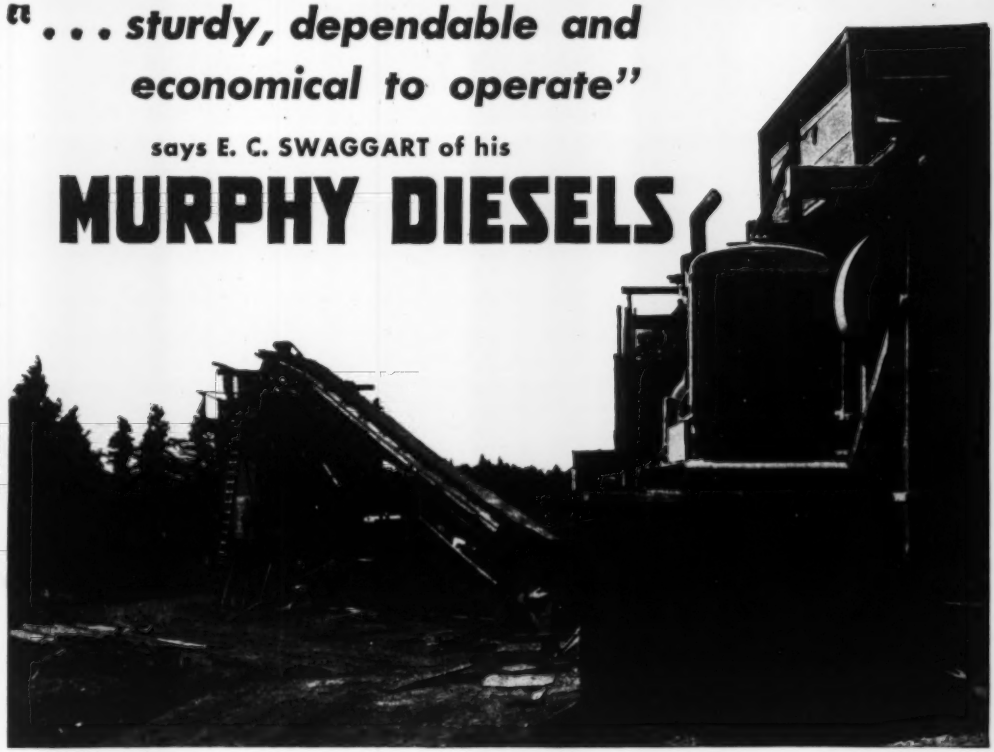
MONSANTO
CHEMICALS—PLASTICS

SERVING INDUSTRY...WHICH SERVES MANKIND

"... sturdy, dependable and economical to operate"

says E. C. SWAGGART of his

MURPHY DIESELS



● ONLY the user can be the final judge of the merit of a diesel engine . . . and that's why we're so proud of what Murphy Diesel owners tell us about their engines. The remarks of E. C. Swaggart, a general contractor of Eugene, Oregon, are typical. He recently wrote as follows:

"I have six Murphy Diesel Power Units powering my crushing plants and one Murphy Diesel Generator Set. I have been using Murphys for five years and have always found them sturdy, dependable and economical to operate. For these reasons, and because of Murphy's fast action, if I need another power unit for my rock plants, I would buy a Murphy."

This kind of user loyalty can be built only by a product that delivers the goods.

Murphy Diesel's ability to deliver more power, greater fuel economy, greater dependability and longer life are the result of an exclusive combination of advanced design features. These include "true" diesel operation . . . unit fuel injection . . . four valves per cylinder . . . hydraulic servo-type governor . . . and many others. Full details are given in the booklet *"10 Questions to Ask a Diesel Engine Salesman"*. Ask your Murphy Diesel Dealer for a copy or write direct.

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5311 W. Burnham St., Milwaukee 14, Wisconsin

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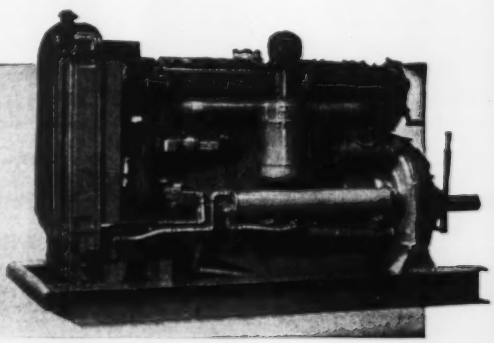
MURPHY DIESEL

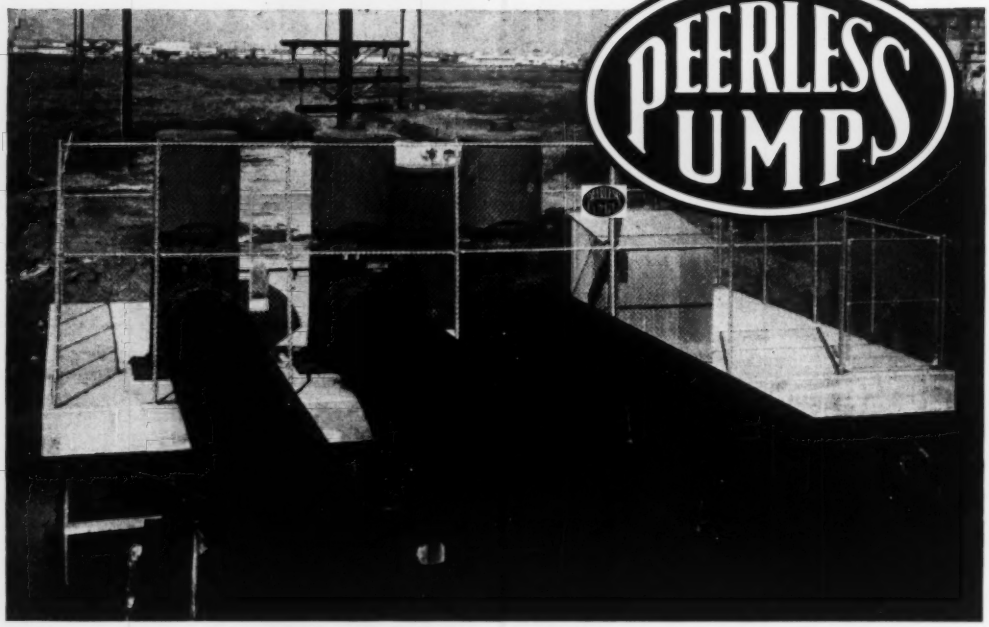
Heavy duty power

for all services

Murphy Diesel engines and power units are made in sizes from 90 to 226 H. P.; generator sets from 60 to 140 K. W.



IN THE WORLD OF MOVING AND CONTROLLING WATER IN LARGE VOLUMES



PEERLESS HYDRO-FOIL PUMPS

OFFER CAPACITIES RANGING UP TO 220,000 G.P.M. AGAINST LOW AND MEDIUM HEADS FROM 2 TO 60 FEET

MIXED FLOW AND PROPELLER TYPES—The best way to move large quantities of water against low or moderate heads is to use Peerless Hydro-Foil Pumps. They're available in two types: propeller type and mixed flow type. Advanced principles of hydro-dynamics applied to the design of these versatile pumps insures lower overall maintenance outlay and reduced pumping costs, in all applications.

SINGLE AND MULTI-STAGE MIXED FLOW PUMPS—Peerless mixed flow pumps are made in single or multi-stage units to give flexibility in the selection of each pumping unit. These pumps complement the propeller type and embody advantageous characteristics of both axial-flow and centrifugal pumps. Designed for sump applications with minimum submergence, maximum heads, minimum installation space. Also available in close-coupled types.

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REQUEST 24-PAGE BULLETIN—For complete design, construction and application data including suggested station arrangements of these Peerless Hydro-Foil Pumps for economical, large-volume water pumping, request Bulletin B-148-1 now.

A FEW OF THE SERVICES AND APPLICATIONS OF THESE MULTI-PURPOSE PUMPS

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PEERLESS PUMPS fmc

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LORAIN BUILDS THE MOST COMPLETE LINE

FROM 10 TO 45 TONS

45 TON CAPACITY

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Here it is — the largest crane on rubber in the world — the Lorain MC-824 Moto-Crane. This is one of two working for Ebasco Service Corp., Joppa, Illinois. A number of these giant cranes have been proven in all types of service — all over the country.

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NEED CAPACITY? How big — or small — or in between? Lorain Crane capacities on rubber range from the versatile 10-ton Self-Propelled SP152 up to the world's largest crane on rubber — the mighty 45-ton MC824 Moto-Crane shown above.

NEED POWER & DRIVE? Select from 2 or 3 axle types with 4 or 6-wheel drive for plenty of tractive effort — plus big, multiple tires for soft ground flotation. There's a type to match your needs.

NEED 1 OR 2 ENGINES? 30 m.p.h. Moto-Cranes with 2 engines are especially Lorain engineered and built to match crane capacities. Single-engine, Self-Propelled machines (7 m.p.h.) round out the biggest rubber-tire crane selection in the field! Remember, Thew built the first crane on rubber tires and is still the leader in this field. *If you need a rubber-tire Crane . . . be sure to check with your Thew-Lorain Distributor to be sure of the best!*

THE THEW SHOVEL CO., LORAIN, OHIO

LORAIN BUILDS CRANES FOR THE SMALL JOBS, TOO!

Here's the "baby" of the Lorain Rubber-Tire Crane family. This 10-ton Self-Propelled Crane, Model SP152, erects a concrete plant for dam construction. Big lifts or little, there's a Lorain on rubber to fit the job.

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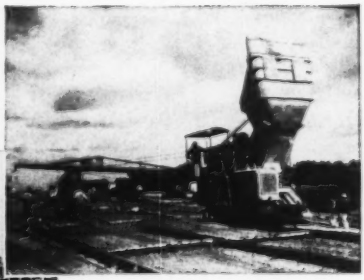

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SPEED — MultiFoote Pavers have established many of the records for output on roadwork.

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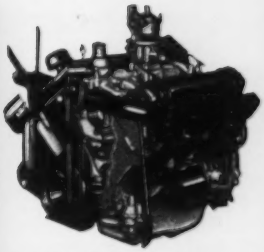
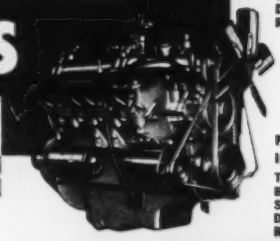
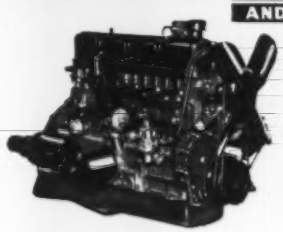
AND POWER UNITS



FORD "317" INDUSTRIAL ENGINE
Type—V-8, 90° Overhead Valve.
Bore—3.8 inches.
Stroke—3.5 inches.
Displacement—317 cu. in.
Rating (dyn.)—140 b.h.p. @ 2800 rpm.



FORD "279" INDUSTRIAL ENGINE
Type—V-8, 90° Overhead Valve.
Bore—3.56 inches.
Stroke—3.5 inches.
Displacement—279 cu. in.
Rating (dyn.)—125 b.h.p. @ 2800 rpm.



FORD "215" INDUSTRIAL ENGINE
Type—6 cylinder Overhead Valve.
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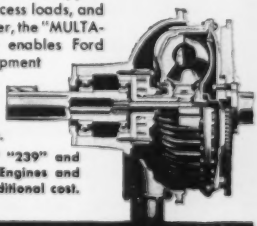

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☐ "254" 6-Cyl. ☐ "279" V-8 ☐ "317" V-8
☐ "MULTA-TORQUE" Converter

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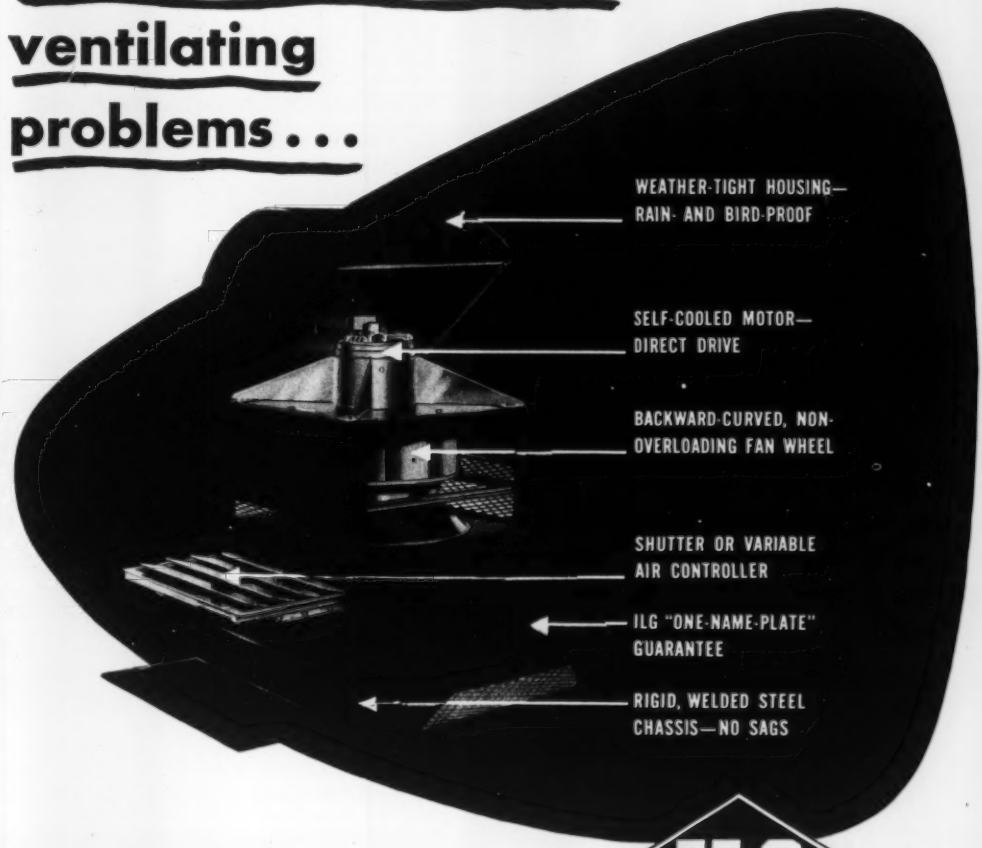
Your answer to tough ventilating problems . . .



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Acceptance of this new product has far exceeded our most optimistic expectations. Architects, engineers, and contractors have been quick to recognize its value. Today, many hundreds of these self-contained ventilating units can be seen on roofs of new hospitals, schools, armed service bases, and industrial buildings throughout the nation. If *you* haven't heard the complete story on these "PRV" units, call in your nearby ILG representative today. Have him show you why you get positive, controlled ventilation, regardless of wind or weather conditions, through vertical flues or duct systems. Have him explain the numerous extra features you get in this high quality product that doesn't require one inch of valuable indoor wall or floor space. With Branch Offices in over fifty principal cities, your experienced ILG engineer is as close as your telephone. Phone him today (consult classified directory), or send coupon.

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LIMA truck cranes are engineered not only for the made-to-order jobs, but with *extra-capacity* for the unusual jobs. Typical is the way this Lima 34-T, with 100′ boom and 20′ jib, hoisted this 24′ x 22′ x 8′ steel tank to the roof of a Columbia, S. C. building. Though the weight was 12,650 lbs. and the height 108′ the LIMA Crane made it possible to handle this tough assignment with ease and precision.

It's on jobs like this that owners and operators appreciate the stability, maneuverability and smooth, easy control of LIMA 34-T Cranes. Their unparalleled stability permits the use of long booms at low angles and extra-high reaches with jib attachments.

Built with crawler, truck or wheel mounting, LIMA Cranes have travel speeds that range from 1 mph to 31 mph depending on mounting. Rubber-mounted machines have capacities up to 35 tons depending upon the type, and are available with crane, dragline or pullshovel front ends. Baldwin-Lima-Hamilton Corporation, Lima-Hamilton Division, Lima, Ohio.

BALDWIN BLH LIMA-HAMILTON

BALDWIN-LIMA-HAMILTON

SHOVELS • CRANES • [illegible] • TRUCK CRANES

Competitive bids in Buffalo prove economy of CONCRETE FRAMES AND FLOORS

Architects for Dante Place housing project were Backus, Crane & Love of Buffalo. Consulting engineer was James N. De Serio of Buffalo. General contractors were John W. Cowper Co., Buffalo, and Corbetta Construction Co., N.Y.C.

In planning the Dante Place housing project, the Buffalo Municipal Housing Authority thoroughly studied frame and floor construction costs. First, they examined records of the New York City Housing Authority, a leader in the field. There more than 95 per cent of the multistory units were built with concrete framing. Second, they made preliminary designs which indicated concrete would permit substantial savings. Third, complete floor and column designs were prepared for each type of construction and submitted for bids. Four out of five contractors priced concrete lowest.

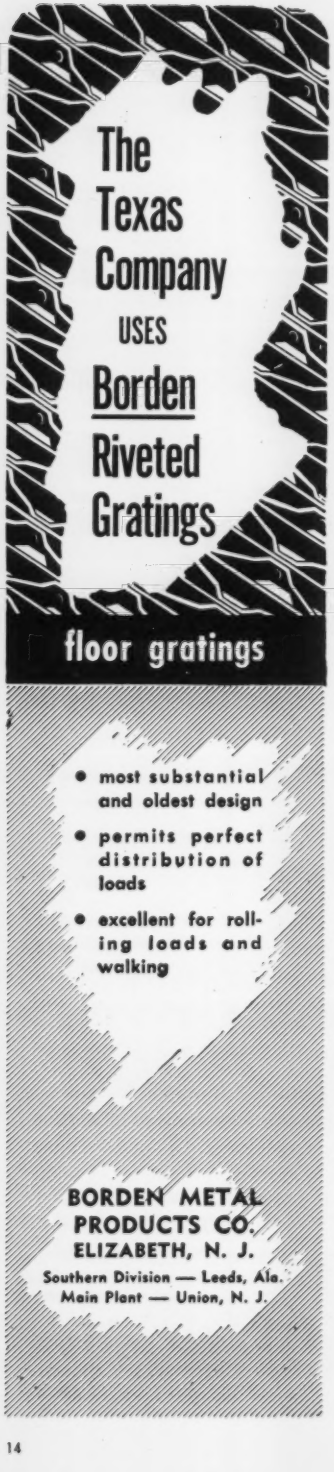
The Buffalo Authority therefore specified concrete frames and floors for the seven 12-story buildings to house 616 families—and saved more than $230,000 on framing costs alone. The concrete design also saved almost a full story in the height of each building, with accompanying savings in masonry, partitions, stairs, conduits and piping.

Concrete frame and floor buildings are low in first cost, require little or no maintenance and give long years of service. The result: ***low annual cost.*** Such buildings also are sturdy, durable, firesafe.

Write for free bulletins, distributed only in United States and Canada.

PORTLAND CEMENT ASSOCIATION
Dept. 4b-17, 33 West Grand Avenue, Chicago 10, Illinois

A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work



READER COMMENT

Flying bridges

Sir: I imagine you are being plagued with all manner of hair-brained schemes to save the Golden Gate Bridge, so I might as well add one more.

The recent article (ENR Feb. 7, p 27) indicated an asymmetricaltorsional, wind-induced movement with maximum vertical vibration of the bridge decek occurring at a quarter point of the main span, which endangered the bridge. This vibration probably takes quite a period of time gradually to build up to serious amplitude. A comparatively small counteracting torsional moment applied at the quarter points of the main span could prevent or damp out this vibration pattern and force a pattern that might not be serious for this particular structure. This might be done by statically increasing the torsional rigidity of the top and bottom lateral bracing systems, but this would be an expensive and time consuming operation.

It might be done dynamically very quickly and inexpensively by installing two pairs of motor driven propellers, one pair at each quarter point on either side of the roadway. By alternately supplying electric power to one or the other motor of each pair the torsional resisting moment to the vibration could be controlled by an operator from a central point. A skillful "pilot" could "fly" the bridge through the occasional dangerous wind that might occur.

E. R. HALLETT
Civil Engineer,
Los Angeles, Calif.

Contractor's responsibility

Sir: In ENR Nov. 29, p. 47, Sir Owen Williams of London, England, says that a contractor, under a bulk-sum contract, assumes full liability for the engineering soundness of the design and must rectify, at his cost, any defects therein.

This is not a correct interpretation of English law. First the law is that "every person holding himself out as a member of a learned profession" is bound to exercise reasonable skill. If an engineer fails so to do the owner has a damage claim against the engineer.

It has many times been held by English courts that the contractor is *not* responsible for the design, but merely for the execution of the work (usually "in accordance with the owner's plans and specifications—prepared by owner's architect or engineer").

Here are citations from the English book "Hudson on Building Contracts":

"The contractor does not usually undertake more than to complete the work to the satisfaction of an engineer or architect. And unless the work is expressly agreed to be constructed to answer a particular purpose, he in no way warrants that it will answer the purpose for which it is intended."

"Under the first head fall the majority of building and engineering contracts where plans and specifications are supplied to the builder to work to. The builder does not warrant that the house or building will answer the purpose for which it was intended, though the builder may be fully aware of the purpose. All the builder has to do is to carry out the work according to the plans and specifications in a workmanlike manner. The employer in such cases does not trust to the judgment of the builder, but to that of his architect or engineer."

There are a number of references in English law exonerating the contractor from responsibility for defects due to materials of a type specified and approved by the engineer. In one case it was held that "even a maintenance clause cannot be construed as throwing upon a contractor the responsibility of maintaining works that were inherently defective in design."

F. L. FITZPATRICK
General Manager
Rocla Pipes Limited
Melbourne, Australia

Army likes USBR idea

Sir: We have been getting quite a number of inquiries as a result of your publication of the optical plummet article ("Optical Plummet Saves $37,000" by C. I. Beck, chief of dam surveys, U. S. Bureau of Reclamation, Hungry Horse Dam, ENR Feb. 7, p. 41).

The latest inquiry is from the District Engineer, U. S. Corps of Engineers, Little Rock, Arkansas, who apparently was so impressed with the advantages that he says, "This office is particularly desirous of using the instrument for all future dam layout."

JACK R. CRISWELL, *Chief*
Special Services Division
U. S. Bureau of Reclamation
Hungry Horse project
Columbia Falls, Montana

Make construction last . . . build with Penta -PROTECTED wood!

THE DOW CHEMICAL COMPANY • *Midland, Michigan*

with clean

Penta*-PROTECTED WOOD

You build for safety and minimum maintenance in future years when you use PENTA-PROTECTED wood for guard rails, bridges and pilings.

Wood treated with PENTA effectively resists decay and termites—actually lasts *many times longer* than untreated wood! PENTA also leaves wood clean, easy to handle, and paintable when properly treated. PENTA will not leach.

PENTA gives effective, dependable service on any all-weather installations—sign posts, billboards or utility poles. For more information on how PENTA can help you "build for tomorrow", write to Dow, Dept. PE-79A.

*PENTA is a popular abbreviation of the chemical, PENTAchlorophenol.

DOW

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"Better in every way"

Says Frank Casilio about new pre-mix setup with Worthington Big Mixer

FRANK CASILIO, President of Frank Casilio and Sons, Bethlehem, Pa., ready-mix concrete producers, Fernando Casilio, Plant Manager, Joanne Casilio, Business Manager.

Output is *up* 35%, hauling time, truck maintenance and fuel consumption are down, at new Bethlehem, Pa., plant of Frank Casilio and Sons.

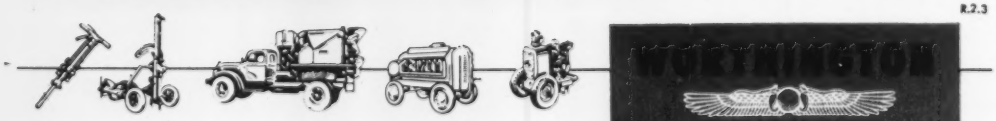
According to Frank Casilio, president of this ready-mix company, they *had* to modernize plant facilities to keep up with a constantly increasing business. So in 1949 the Casilio Company set to work to replace their existing transit-mix setup so as to increase output without sacrificing a reputation of unexcelled quality.

The resulting pre-mix installation—a model of efficiency—was achieved with the help of batching specialists and Worthington engineers. New facilities include a 2 yd Worthington Big Mixer, a fully automatic Worthington Water System, and 15 Worthington Hi-Up Truck Mixers.

Write for further data on Worthington Big Mixers and other Blue Brutes that can boost your plant's output and efficiency. Worthington Pump and Machinery Corporation, Construction Equipment Division, Dunellen, New Jersey.

"A MODEL OF COMPACTNESS AND EFFICIENCY." That's what construction people call this modern Casilio pre-mix plant at Bethlehem, Pa. All controls are situated within a 6-foot radius including those for the Worthington Big Mixer which charges or discharges in 12 seconds. Production's up over 30% with same haulage units—15 Hi-Up Truck Mixers like one in foreground.

R.2.3



If It's A Construction Job, It's A *Blue Brute* Job

WORTHINGTON

Construction Equipment

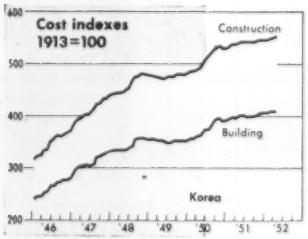
APRIL CONSTRUCTION SCOREBOARD

ENR INDEXES (1913 = 100), 20-cities' average	1952 April	% Change from last Month	% Change from last Year
Construction Cost	554.12	+0.6	+2.6
Building Cost	407.81	+0.1	+1.9
WAGE RATES, 20-cities' average			
Common	$1.680	+0.9	+5.3
Skilled (aver. 3 trades)	2.774	+0.1	+5.9
Bricklayers	3.101	0.0	+7.1
Structural Ironworkers	2.711	+0.4	+5.5
Carpenters	2.511	+0.03	+4.9
MATERIAL PRICES, 20-cities' average			
Cement, bulk, per bbl	$3.180	0.0	+1.0
Structural Steel, (3-mill aver.), per cwt.	3.650	0.0	0.0
Sand, per ton	2.106	0.0	+0.7
Lumber, 2x4 Fir, per M. ft. bm	107.875	+0.9	−3.2
Lumber, 2x4 Pine, per M. ft. bm.	91.433	−0.4	−3.3
Common brick, per M	31.271	+0.4	+0.3
Ready-mixed concrete, per c. y.	10.909	−1.0	−0.1
Structural Clay Tile, 3x12x12 per M	151.288	0.0	+5.5

CONTRACT AWARDED (Millions)	1952 Mar. (4 weeks)*	1952 3-Mos.	% Chg. from '51 Mar. (5-weeks)*	% Chg. from '51 3-Mos.
Total U. S. (ENR reported)	$1,043	$3,028	− 7.3	−23.2
Private	549	1,687	−22.3	−32.5
Public	494	1,341	+18.1	− 7.1
Federal	128	435	− 9.7	−18.4
ENR Volume Index, '13 = 100	509	455	− 8.7	−27.2

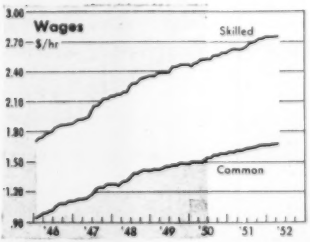
NEW CAPITAL (Millions)	(4-weeks)*		(5-weeks)*	
Total	$703	$1,734	+130.1	−56.3
State & Municipal Bond Sales	214	657	+ 7.5	− 2.0
Corporate Security Sales	455	1,018	+325.9	+62.7
Federal (non-federal work)	34	59	.....	−19.6
Federal (federal work)	.....	.....	.....	.....

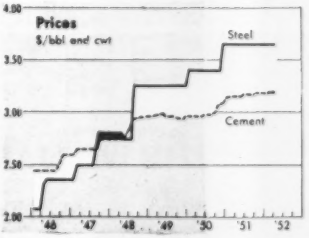
* Computed on Weekly Average

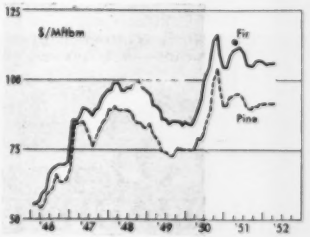


MATERIAL SHIPMENTS & LABOR SUPPLY (Millions)	Jan.(J) Feb.(F) 1952	12 Mos. '51(12) 2 Mos. '52(2)	% Change Mo.	% Change Cum.
Cement, bbls, Bu. of Mines	12,696(J)	241,307(12)	+ 3.7(J)	+ 5.9(12)
Fabr. Struc. Steel, tons, AISC	0.248(F)	0.498(2)	+27.8(F)	+22.0(2)
Lumber, mil. ft. bm., NLMA	3.021(J)	37.655(12)	− 5.5(J)	− 5.1(12)
Lumber Prod., mil. ft. bm., NLMA	2.798(J)	39.265(12)	− 6.8(J)	− 0.2(12)
Contract Constr. Employ., BLS	2.276(F)	2.297†(2)	+ 2.1(F)	+ 1.8(2)

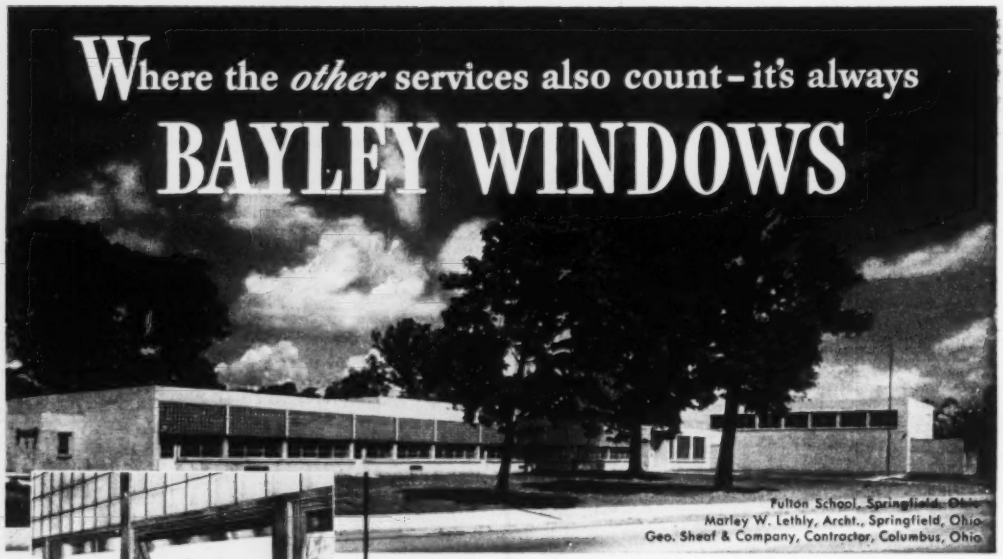
† Average



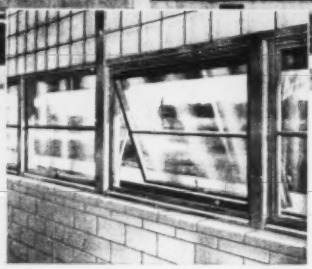




Where the *other* services also count – it's always BAYLEY WINDOWS



Fulton School, Springfield, Ohio
Marley W. Lethly, Archt., Springfield, Ohio
Geo. Sheaf & Company, Contractor, Columbus, Ohio



Highlights of this New Exclusive BAYLEY Product

—Carries Quality Approved Seal of the Aluminum Window Mfgrs. Ass'n for materials, construction, strength of sections and air infiltration.
—Modern, ribbon-line appearance.
—Maximum air, light and vision.
—Typical Ventilation—

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—Installed in prepared openings or built into masonry.
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New Bayley *AirVUE* Window
Scientifically Designed for Modern Schools

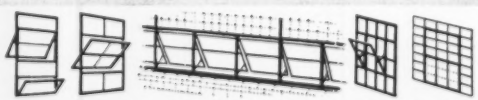
A fine quality product is only the *first* essential to a truly satisfactory relationship. Better cooperation and extended services through all the building stages—going even beyond full performance demands—is even more important. Known for a policy that's founded on this fact is why Bayley is so regularly preferred by discriminating Building Designers.

The new Bayley AirVUE Window is tangible evidence of this policy. To contribute scientific design improvements in a school window, Bayley did not pursue the conventional. They studied the problem from the building's inception to the student's comfort. They collaborated with school Architects and Educational Authorities.

As a result the Bayley AirVUE Window fulfills today's professional diagnosis of a proper window for modern school buildings. In addition it complements the Bayley Aluminum Projected Window, and also it incorporates construction features made possible only by Bayley's years of specialized window experience.

You too will find *extra values* in discussing your window problems—whatever they may be—with Bayley. Write or phone.

See Bayley in Sweet's. Complete catalogs on Aluminum Windows, 17a/BA; Steel Windows, 17b/BAL; SAF-T-GARD Hospital Detention Window, 17b/BAY.



PROJECTED PIVOTED AirVUE GUARD SAF-T-GARD

THE WILLIAM BAYLEY COMPANY
Springfield, Ohio

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EDITORIALS

Civilian construction prospects better

THE PROPHETS who had the temerity to guess the course of construction in this presidential election year—and they include this journal—are already being crossed up. Announcement of increases in third-quarter steel allotments for schools, commercial buildings, homes and pipelines, with parallel decreases for industrial buildings and the military, may well reverse the predicted pattern. In any event, civilian construction prospects look better—and highways, which were expected to improve, now have a chance to show a considerable increase.

This changed picture comes about for two principal reasons. First there was the announced new policy of stretching out the military preparedness program, which resulted in cutting down its current size. And second there is the politically-based desire to reduce the number of dissatisfied voters who will come to the polls next fall. The best way to assure happy voters is not to deny them anything that can be granted.

Actually, if a war is not so dangerously close as was once feared, a more healthful economy will result from less military and more civilian construction. The end effect on total construction for the year is not apt to be great. The prediction of about 10% less volume than in 1951 still stands—until some other development occurs to prove it wrong.

Lawmakers heed road men—a little

HIGHWAY OFFICIALS may grumble at the prospects for increased federal aid for fiscal 1954-5, but there's evidence that Congressmen are aware of the highway situation—even if the Executive isn't.

The House Public Works Committee has approved $550 million in federal road aid for each of the two years beginning July 1, 1953. That's $260 million less than the amount believed by highway officials to be needed for an attack on accumulating program deficiencies (ENR Dec. 13, 1951, p. 27). But it's $150 million more than the President's budget recommendation. And it's $50 million more than the amounts for fiscal 1951-2.

The subcommittee that recommended the $550 million figure said the $50 million boost was to cover a 10% increase in construction costs. The group also called the lower budget figure "unrealistic," in view of large federal gas tax receipts. Evidently some thought had been given to the highway officials' case. And apparently the case had been found meritorious, because there was no "across the board" increase of public works budget figures. In fact, Corps of Engineers civil functions took a $200 million cut from budget recommendations.

In these days of overbearing taxation (ENR Mar. 27, p. 19) economy is an absolute responsibility of the Legislative. But the economizers must have the advice that will enable them to recognize false savings when they see them.

Congressmen got that advice on highways. Prospects are that they will heed it—a little. But they will still someday have to come to grips with the inadequacy of federal aid in comparison with highway needs. If they would take serious account of the fact that the federal tax income from roads is three times what the federal government spends on them, their decision to increase road aid—and look for economies elsewhere—would be easier.

Cheaper beach protection needed

GREATER INTEREST along all of our seacoasts in the development of recreational beaches as well as in waterfront residences points up the need—and the attendant difficulties—of effective storm protection. Too few persons who enjoy these facilities realize what a constant battle is necessary to prevent wind and waves from destroying many of these beaches, and yet considerable engineering skill and large expenditures are required even to fight a delaying action.

The new groins at Ocean Beach on Long Island, N. Y., described on page 73 of this issue, are a good example. While the engineers called for the least costly construction that they believed capable of stabilizing the beach, the cost of the four groins totaled about $75,000. Assuming the groins could protect 1,500 ft of shore, this represents nearly $50 a front foot.

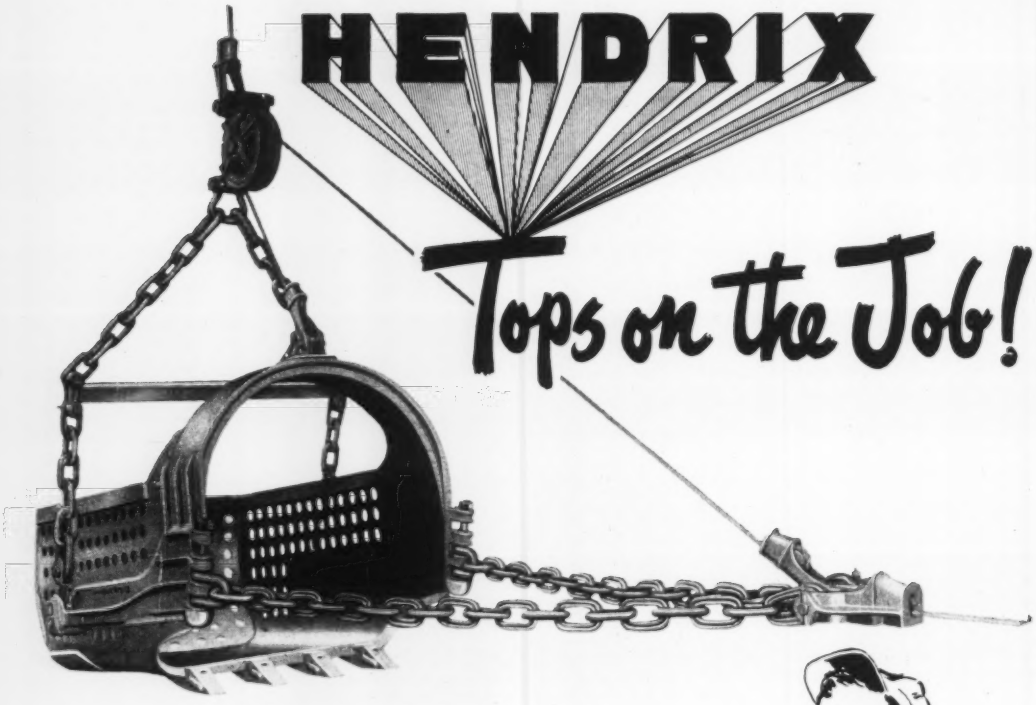
In this particular case, it may be that the real estate can stand such a charge. But quite often, engineers find that the cost of beach protection far exceeds the value of the land to be protected.

Furthermore, unlike most other types of engineering structures, groins and similar protective structures may not necessarily fulfill the function for which they were built. Too many variables are involved. Model testing may reveal how to cope with some of them, but it too is costly and not too conclusive because of the difficulty of reproducing actual conditions. At many locations, solutions have to be sought through trial and error. Experience and good engineering judgment are helpful in cutting down the number of trials needed. Hence, it is highly important that experience with shore protection be put on record as a guide to others.

Evidently, the battle against the sea will be lost except at a few of these eroding sites—unless new weapons can be developed to cut beach-protection costs. Progress has been made over the years, but more needs to be learned of the mechanism of sea erosion. That, plus experience with new type structures, such as those at Ocean Beach, may produce the cheaper methods of effective shore protection that are so sorely needed.

HENDRIX

Tops on the Job!



"MY MAINTENANCE TROUBLES ENDED WHEN I HITCHED UP A HENDRIX!"

That's what dirt contractors are saying to each other! Hitch-up a Hendrix Dragline Bucket for digging at lower cost per yard . . . more yards per minute. They know that Hendrix Buckets give them unsurpassed performance with minimum maintenance costs and delays resulting in BIGGER PROFITS ON EVERY JOB! A full load . . . smooth operation . . . clean dumping with less stress and strain on your dragline PLUS long life in heavy-duty service. THAT'S HENDRIX!

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FOR
EVERY DIGGING PURPOSE
⅜ to 40 Cu. Yds.

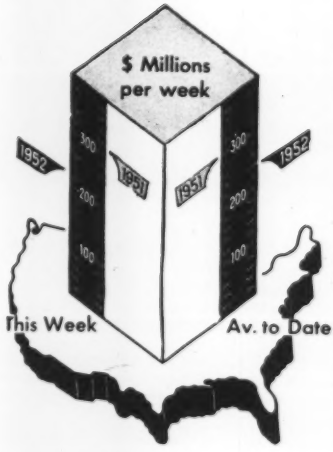
Hendrix Buckets Without Perforations On Special Order Only

HENDRIX *Lightweight* **DRAGLINE BUCKETS**

HENDRIX MANUFACTURING CO., INC.

MANSFIELD – LOUISIANA

THE CONSTRUCTION WEEK



Contracts by type of work

	This Week	Cumulative 15 wks 1952	1951	% chge
Waterworks	$1.4	$75.1	$68.7	+9
Sewerage	3.1	55.9	93.6	−40
Bridges	5.1	93.0	80.1	+16
Highways	30.4	332.0	274.2	+21
Earthwork, waterways	44.7	166.2	102.7	+62
Buildings:				
Public	22.0	437.9	720.3	−39
Housg., pub.	24.8	296.3	176.8	+68
Housg., priv.	39.7	778.6	566.7	+37
Commercial	9.3	147.8	198.8	−26
Industrial	35.3	850.6	1,706.4	−50
Unclassified	12.7	368.8	504.0	−27
Total	**$228.5**	**$3,602.2**	**$4,492.3**	**−20**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR COST INDEX

Index Base = 100	1913	1926	1949
Constr. Cost. Apr. '52	554.12	266.36	118.16
Bldg. Cost. . . Apr. '52	407.81	220.45	115.42
Volume . . . . Mar. '52	509	207	147

BIG AIR BASE PROGRAM FOR EUROPE—No announcement has yet been made, but there will be an air base building program in Europe bigger than the one in Morocco. It might total $600 million. Some American architect-engineer firms have already sent representatives to France, seeking partnerships with French firms who might be in a position to get some of the work. The bases will be mostly in France and Spain, with local contractors doing the construction. American contractors may be admitted to some of the combines that are formed, but they won't dominate the work as in Morocco. Eisenhower's North Atlantic Treaty Organization will be much more in evidence in the European planning and construction than it has been in North Africa.

ANTI-TRUST AGAIN—In Chicago, Anti-trust Division attorneys of the Department of Justice already are investigating the possibility of monopoly in plastering and lathing practices (ENR Apr. 3, p. 21). Last week they also started an investigation to determine whether a monopoly exists in the tile industry. Eight subpoenas were issued for records of the tile layers union, tile contractors and manufacturers. The records are to be brought before the federal grand jury April 14. Grand jury hearings started Monday on possible monopolistic practices in the plastering and lathing industries. Forty-two officials of contracting firms, unions, and trade associations of the industries have been subpoenaed to appear.

INCOMPLETE WHITEWASH—Criminal action may yet result from Arkansas' Highway Audit Commission investigation into the state highway department. A split grand jury declined to bring criminal charges following the disclosures (ENR Apr. 3, p. 29). It considered charges of bribery and other offenses against six persons: Highway Commissioners Charles Adams and A. D. Mason; John K. Brown, former highway department purchasing agent; Maxwell Lyons, head of a Little Rock road machinery firm; M. C. Methvin, former highway department engineer; and Gordon McNulty, contractor. It returned eight indictments, each marked "No True Bill." A number of members of the jury promptly asked to be relieved of further duty. Last week Circuit Judge Gus Fulk ordered a reopening of the investigation when a new Grand Jury is empaneled in September.

IN THIS ISSUE—What steel strike means to construction (p. 23) . . . NPA announces third quarter structural allotments as steel strike impends (p. 26) . . . Power firms push expansion plans (p. 28) . . . Construction bills get shuffle in Congress (p. 29) . . . Industrial plants breed community building (p. 30) . . . Highway planning active (p. 31) . . . AGC fights pension fund spread (p. 32) . . . Water and sewage works aid near (p. 42) . . . Slab slipping method mends highway (p. 53) . . . Important refinery under construction in England (p. 59) . . . Flood control technique described (p. 67) . . . Beach protection costs cut by concrete blocks (p. 73) . . . Lift slab roof has prestressed design (p. 77) . . . Parking garage has lightweight floors (p. 81) . . . Highway bond issue proves successful (p. 120) . . . Contract awards jump to $1 billion (p. 122) . . . Foreign steel moves to hold U.S. markets (p. 124) . . . Weird construction underway (p. 148).

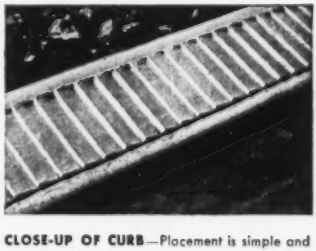
with WHITE CONCRETE REFLECTING CURB made with Atlas White Duraplastic*

Like a radio beacon to an airplane, a beam of reflected light along this highway shows drivers the way to safety in darkness and rain—as well as by day. This round-the-clock safety feature is found on the many fine highways which now use Concrete Reflecting Curb made with Atlas White Cement.

Reflecting Curb is clearly visible by day because the pure white of Atlas White Cement contrasts with the darker pavement and shoulders.

After dark, thousands of white corrugations in the curb take over. They're scientifically angled to bounce headlight rays *back to* the driver—instead of wasting the light in space. Thus a beam of reflected light along the curb clearly outlines the road ahead. When wet, the corrugated curb reflects even more light, giving extra protection on rainy nights when good visibility is needed most.

Why not plan now to make the safety of Concrete Reflecting Curb part of your next highway project? If you would like further information, write Atlas White Bureau, Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Avenue, New York 17, N. Y.



CLOSE-UP OF CURB—Placement is simple and fast. One method is to place a mortar mix of Atlas White Duraplastic air-entraining cement on a grey cement base, screed to 1-inch thickness and score with a hand tool. Contractors prefer Duraplastic cement because its air-entrainment feature makes the mix more workable, more plastic; makes placement and scoring easy.

*"*Duraplastic" is the registered trade mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company.*

ATLAS® **WHITE CEMENT**
For Concrete Reflecting Curb and Markers

ENR-RM-74

"THE THEATRE GUILD ON THE AIR"—*Sponsored by U. S. Steel Subsidiaries—Sunday Evenings—NBC Network*

OPPOSES INCREASES—Benjamin Fairless, U. S. Steel Co. president, has fought against either a wage increase or a price increase. But if there is a wage increase, he and other industry leaders want a compensating increase in steel prices.

Here's how the steel strike will affect construction

STANDS FAST—President of the CIO Steel Workers Phillip Murray says his union will not compromise on wage increases recommended by the Wage Stabilization Board.

As blast furnaces and open hearths cooled, and rolling mills slowly stopped turning, the steel industry began coming to a shuddering halt this week (see p. 26). And construction men braced for the impact.

The impact of steel strikes on construction can be carefully measured. Since the end of World War II, contractors have been through two steel strikes. The first lasted 29 days from mid-January to mid-February 1946, and the second lasted 36 days roughly covering the month of October in 1949.

Both strikes set a pattern of impact on building material supplies and on construction costs—a clear pattern to follow and simple to project into the future. Based on records of what occurred in those strikes, and modified by certain changes in the picture today—here is the outlook:

I. Steel supplies

The loss of steel output during the strike will be somewhere between 2.5 and 2.8 million ingot tons a week.

Steel mills began cooling their furnaces last week. That process means a loss of three or four days' production before the men walk out. The time required to resume operation depends on the length of the strike. After a short strike the mills could get back to capacity production in a matter of days. The government may not allow a shutdown to run more than 10 to 14 days. In that event, the steel plants probably could work back to near capacity in a week or ten days.

A strike of that duration might cost us nearly five million product tons. Of that amount, roughly one million tons would be steel for construction.

There is no assurance that the shutdown will be shortened. Unless the mills are seized, it might last four weeks or even longer. After four weeks, the mills would require two to four more to reach capacity output again. The total loss might be nine to ten million product tons, with construction losing about two million.

In the first strike after War II—Jan. 20 to Feb. 18, 1946—the average steel operating rate of January dropped to 50% of capacity. For February it went down to 20%. And by March it had climbed back up to 83%, a little above where it had been the month prior to the strike. Six million tons of steel were lost.

In the strike during October, 1949, the average operating rate for that month went down to 11% compared to 84% during the previous month. It climbed back to 53% during November, and was normal again in December. Ten million ingot tons of steel were lost.

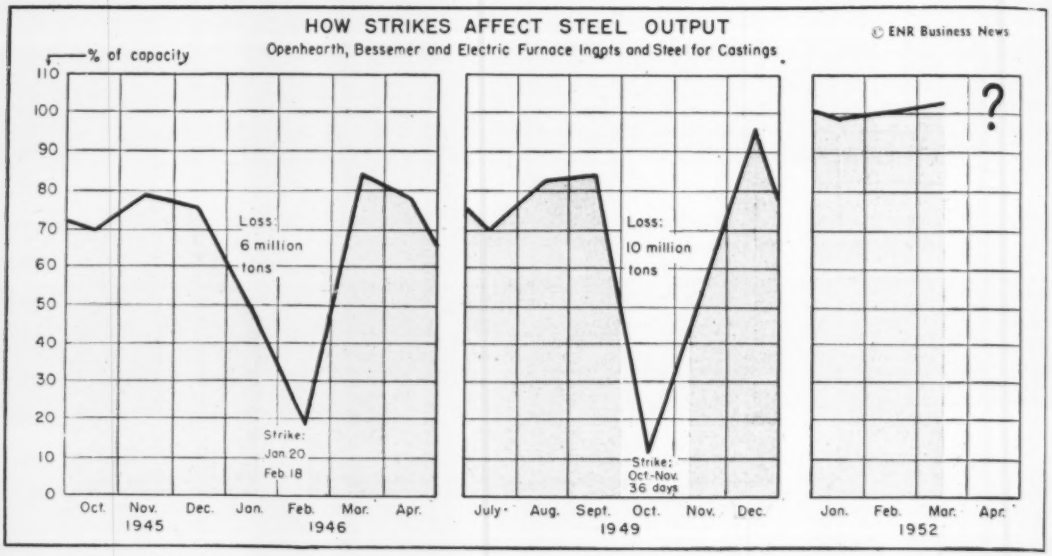
A strike of the same duration as 1949—36 days—today would result in a loss of between 12 and 14 million tons because of higher tonnage capacity and the current high operating rate of over 104%.

II. Steel shipments

The first real drop in shipments of structural steel will come during the first week in May. During the strike, structural production losses will be about 33,000 tons a week.

Shipments of reinforcing bars will drop off in the next week. During the strike, reinforcing bar production will be lost at a rate of about 22,000 tons a week.

Here's what happened to structurals in the last two strikes: Although the walkout occurred Jan. 20, 1946, it



(*Continued from p. 23*)
was not until February that shipments of structurals dropped to 73,000 tons —41% below January's 124,000 tons. Shipments did not regain their full stride until the following April. Total loss during the strike was about 55,000 tons.

In the October 1949 strike, about 125,000 tons of structurals were lost, shipments dropping to 115,000 tons —39% under September. In November they were still down to 135,000. Not until December were they back up to 166,000 tons, as compared to 188,000 tons shipped in September.

Structural shipments during February this year totaled 248,000 tons. A strike of the same duration as that in 1949, today would result in a loss of about 165,000 tons in shipments.

Here's what happened to reinforcing bars during the two strikes: In 1946, shipments of reinforcing bars totaled 100,000 tons in the two months affected by the strike—about half the rate of the 104,000 tons shipped in March following the strike. Loss was about 100,000 tons.

October 1949 shipments dropped to 31,000 tons, compared to the 162,000 tons shipped in September. In November, the same month the strike ended, shipments picked up fast and by the end of the month totaled 125,000 tons. Total loss during the strike was about 160,000 tons. Today a strike of the same duration as in 1949 would cost 168,000 tons.

After the strike ends, shipments of structurals should pick up to normal again in about one month. Shipments of reinforcing bars should be back to normal within a couple of weeks or less.

WON'T GIVE ON PRICES—Director of Price Stabilization Ellis G. Arnall says steel can have only a $2 to $3 a ton price increase. The industry wants $5 to $12, may settle for $7.50.

III. Steel prices

Steel prices are at the base of the entire strike. The steel industry says it needs a price rise of $12 a ton to cover the direct and indirect costs of the wage board's proposals. But there are rumors that it can be talked down to $7.50 a ton.

Ellis G. Arnall, Director of Price Stabilization, says the steel industry can get only $2 to $3 a ton under the Capehart Amendment to the Defense Production Act—and that is all it is entitled to.

Let's see what happened in the last two strikes: In 1946, steelworkers got an 18½-cent hourly wage increase. It was followed by a 13.6% increase in ENR's average mill prices of structural shapes. They went from $2.07 cwt in January to $2.35 cwt in May. In October 1949, the steel workers won pension plan benefits, and in December structural steel went up 5% from $3.25 to $3.40 cwt, based on ENR's mill average.

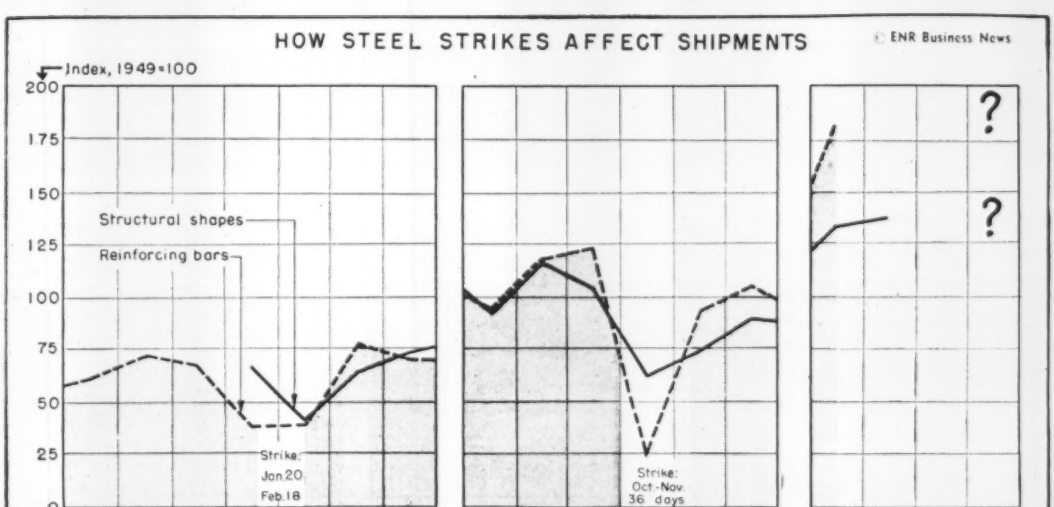
Again in December 1950, when steel workers won a 16-cent hourly wage increase, ENR's price of structural steel went from $3.40 to $3.65 cwt—a 7% increase.

Projecting this record—a wage increase of 19 cents an hour this year that would increase to 26 cents per hour for the first six months of next year as recommended by the Wage Stabilization Board—would also increase the cost of structurals about 7.5%. The cost would rise from $3.65 cwt to between $3.90 and $3.95 cwt. That is our prediction.

Also affected will be labor costs. Here the influences of the steel strike are difficult to isolate. But—if the pattern following the other two strikes applies—the cost of labor in construction this year will increase by approximately 5%.

IV. May be absorbed

The economy was in more flexible shape to absorb the effects of a twenty-nine-day strike in 1946 and a thirty-six-day strike in the fall of 1949 than



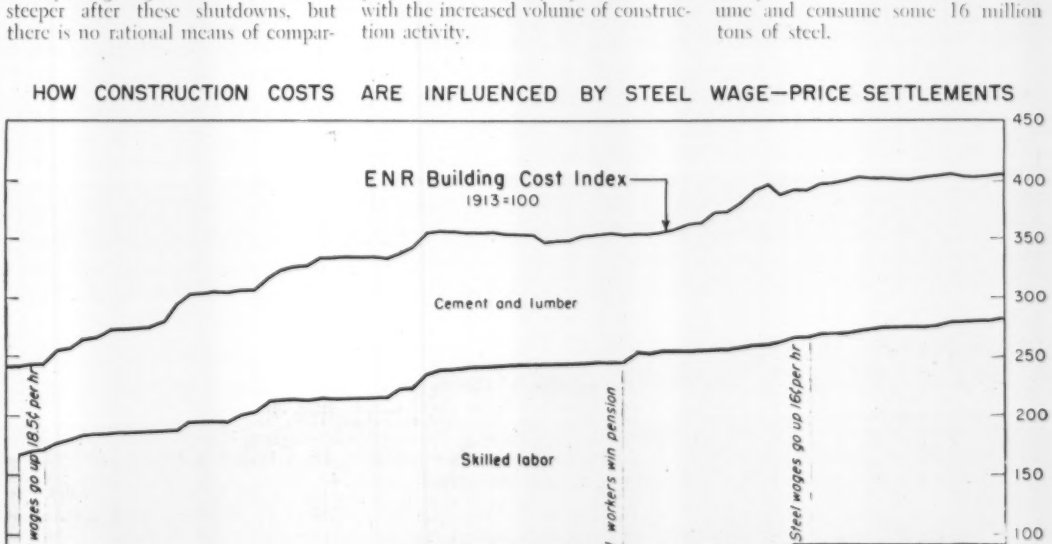
it is prepared to at the present time.

Statistically speaking, those strikes had no measurable effect on volume on construction as reported by the Commerce Department's Building Materials Division and the Bureau of Labor Statistics. Both in dollar volume and in physical volume, construction activity climbed steadily upward in the months following these two strikes. Quite possibly the slope of the upswing might have been a little steeper after these shutdowns, but there is no rational means of comparing the post-strike volume figures with hypothetical estimates.

BLS Monthly Data on Contract Construction Employment show the same lack of effect for the months following two strikes. For both volume and employment, the seasonal dip in December-January-February was no greater than might have been expected without the steel strikes. Overall, the trend of construction employment was steadily upward, in line with the increased volume of construction activity.

There are steel people today who feel that a strike of short duration can be absorbed without a serious cut in the volume of construction for the year. Attrition rates of up to 25% on structural steel allotments indicate that there is enough give-and-take in the supply lines to cushion a good part of a brief shutdown, in their opinion. If the mills don't stay closed too long, they look for construction this year to come close to 1951 volume and consume some 16 million tons of steel.

HOW CONSTRUCTION COSTS ARE INFLUENCED BY STEEL WAGE—PRICE SETTLEMENTS



ALL BECAME QUIET IN "IRON ALLEY" as the nation's blast furnaces cooled in preparation for the steel strike. Plumes of steam and jets of smoke vanished, and the roar of the air blast died away. (U. S. Steel Corp. Photo.)

NPA allots structurals in face of strike shutdown

Early this week it appeared that nothing short of a minor miracle could prevent a shut-down of the nation's steel industry.

The issues in the dispute between industry leaders and the CIO United Steelworkers were clearly drawn. The industry is opposed to any wage increase, or price increase in steel—but contends that if wage increases are granted, then there must be a compensating rise in the price of steel.

The union stands hard and fast on recommendations of the Wage Stabilization Board for wage increases and fringe benefits that will cost the steel industry about 19 cents per employe hour this year and about 26 cents an hour during the first six months of next year.

To pay the WSB-recommended increase, steel leaders say the industry needs a price increase of $12 a ton. The Office of Price Stabilization says it is entitled to between $2 and $3 under the Capehart Amendment to the Defense Production Act—and no more. There the dispute rests.

If the strike occurred on schedule at 12:01 a.m. Wednesday, it was the result of an unresolved conflict between what steel leaders consider a fair settlement of the dispute—and the government's current wage-price policies. For that reason, there is talk in government circles about seizure of the industry.

Steel leaders will resist seizure with all the resources at their command. They point out that seizure would amount to confiscation of property to enforce government policies on wages and prices. Both the industry and the union have made complete preliminary preparations for the strike shutdown.

I. Structurals allotted

In the face of the looming strike, the National Production Authority this week announced allotments of structural steel for the third quarter. (See table on next page.) They showed that structurals supplies are loosening.

Significant in the new schedules is the build-up of NPA reserves. General reserves went up from 32,914 tons in the second quarter to 50,000 tons for the third quarter. Structurals for field office accounts shot up from 648 tons in the second quarter to 17,977 in the second. Total Defense Production Administration reserves went up more than 27,000 tons to 105,695.

These reserves will be available to cushion the effects of a steel strike on the construction industry to some extent.

Self-certification allowances also showed a significant increase—about 23% over the second quarter—to 90,678 for the third quarter. This will provide additional cushioning against a steel shutdown.

• **Ups and downs**—Largest single increase in allotments is slated for the Bureau of Public Roads—and it is a whopper. First quarter structurals allotments of 56,000 tons climbed to 80,600 in the second quarter, and now take a 56% jump to 125,000 tons in the third quarter.

Also substantially improved is the supply of structurals for commercial building under NPA's Facilities and Construction Bureau. Allotments here leap 175% from 16,285 in the second quarter to 40,000 tons in the third quarter—an increase of nearly 24,000.

Biggest drop in structurals allotments is the better than 30% nosedive in supplies provided for the Facilities & Construction Bureau's industrial expansion division. Allotments of 360,768 tons in the first quarter dropped to 268,140 in the second quarter, and now tumble another 85,000 tons to 183,000 in the third quarter. This reflects the slowing-down of industrial expansion under the mobilization program. It shows industrial expansion is now well past the peak.

Allotments to the Department of the Army, the Atomic Energy Commission, and the Defense Department remained relatively steady. The Defense Electric Power Administration took a decrease of 12% to 120,000 tons.

Structurals for building schools and hospitals went up a combined total of 17,000 tons for the third quarter, under allocations to the Federal Security Agency.

II. Strike plans

Even for a short strike, many construction people—in government and out—predict the National Production Authority will (1) immediately withdraw all advance allotments recently granted to commercial—religious-public projects and (2) direct builders of non-defense projects to reduce or cancel their outstanding CMP second-quarter orders.

First government action anticipating the steel strike was an NPA order freezing all warehouse and mill stocks of steel destined for manufacturers of consumer durables, and including automobiles. The order came out a day and a half in advance of the strike deadline. No freeze was ordered on steel for construction. So far as could be learned Monday, none was planned at that time. No interference was contemplated with steel already enroute to the user.

Heavy plate, wide-flange shapes and seamless tubing are still on a hand-to-mouth basis. Other steel products for construction like-wise are still short. The cutoff on these items would be felt immediately. For other items, the effect would be a little slower coming.

Defense projects would get what steel is available at the start of a strike. And, at the end of a shutdown, their full requirements would be met before other jobs would receive any steel. NPA has ample powers to enforce that distribution.

III. Build-up slows down

Barring any new, unforeseen metal shortage, the impact of the defense build-up on construction has about spent itself.

You can see that in the text, and between the lines, of Charles E. Wilson's final quarterly report as Director of Mobilization. It's both good and bad news for industry—but mostly good news.

On the plus side, most materials, except copper, are in such improving supply that the government controllers are planning to remove most restrictions by the end of this year or early in 1953.

On the other hand, since most of the plant expansion vital to rearming is either underway or ready to go, there'll be little more government assistance for additional industrial building. This means the big federal incentives for industrial expansion—five-year tax amortization, government loans and loan guarantees—will soon dry up.

There are exceptions, of course, notably for expansion of electric power, petroleum and chemicals production. Mobilization goals for output levels in these industries have been raised. So they'll get whatever government aid they need to hit the new targets that have been set up.

Some new plants, which otherwise would go ahead this year without any form of government aid except materials allotments, will be delayed another six to nine months, however. That's because of the tightness of equipment and copper.

Carbon structural steel allotments.

First three quarters 1952—in tons.

	1st. Q. (as of 3/5/52)	2nd. Q. (as of 3/19)	3rd. Q. (as of 3/19)
Grand Total	1,596,616	1,599,775	1,656,397
Supply	1,425,000	1,425,000	1,425,000
% of supply	112.0	112.3	116.2
NPA Reserve (General)	34,043	32,914	50,000
NPA Reserve (Hardship)	.....	2,421	2,500
NPA Field Off. Account	.....	648	17,977
DPA Total Reserve	33,808	78,581	105,695
MRO-Self Certification	21,800	73,564	90,678
Small Users Account	.....	5,017	5,017
General Claimant Agencies			
Gen. claimants (total)	642,443	718,629	801,202
Agriculture, Dept.	4,000	8,910	9,000
Army, Dept.	13,000	12,870	14,000
Atomic Energy Comm.	43,500	20,642	23,591
Civil Aeronautics Adm.	5,400	7,920	8,000
Defense, Dept.	[1]163,490	[2]212,628	[3]212,191
Def. Elec. Power Adm.	137,976	148,500	120,000
Def. Fisheries Adm.	.....	218	200
Def. Minerals Procure. Agen.	17,000	18,850	17,000
Def. Solid Fuel Adm.			
Coal Mine Constr.	4,040	8,910	8,000
Coke Oven Constr.	5,772	7,920	9,000
Def. Transport Adm.	24,500	24,255	35,000
Fed. Civil Def. Adm.	565	99	250
Federal Security Agency			
Education	26,013	29,235	40,000
Hospitals	19,004	18,315	25,000
Gen. Services Adm.	4,500	4,950	5,000
Hous. & Home Fin. Agen.	10,500	7,425	7,500
Interior, Dept.	1,459	1,386	670
Maritime Adm.	15,952	19,503	18,700
Off. Internat. Trade & Mut. Secur. Agen.	29,300	30,647	40,000
Petrol. Adm. For Def.	55,000	51,480	80,000
Bur. Pub. Rds.	[4]56,000	80,600	125,000
Vet. Adm.	5,472	3,366	3,100
NPA Division Claimants			
NPA (Excluding Reserves)	886,322	766,582	724,023
Agri. Mach. & Impl. Div.	16,000	17,980	18,400
Bldg. Matl's. Div.	4,566	5,345	5,100
Canadian Div.	58,000	55,152	55,000
Communications Div.	4,100	4,115	4,000
Constr. Mach. Div.	35,721	35,615	42,000
Elec. Equip. Div.	4,584	12,580	13,500
Engine & Turbine Div.	31,614	33,724	36,800
Facilities & Constr. Bur.			
Constr. Controls	12,179	16,285	40,000
Indust. Expans.	360,768	268,140	183,000
Gen. Indust. Equip. Div.	77,212	62,297	60,000
Iron & Steel Div.	13,000	17,084	10,000
Metalworking Mach. & Equip. Division	34,983	29,984	33,000
Mining Mach. & Equip. Div.	13,000	10,399	10,500
Motor Vehicles Div.	1,500	6,399	6,400
Ordnance & Shipbldg. Div.	14,900	16,786	23,000
Railroad Equip. Div.	165,876	151,025	161,745
Scientific & Tech. Equip. Div.	410	1,236	1,200
Service Equip. Div.	690	1,408	1,025
Water Resources Div.	21,170	19,800	18,000

[1] Struc. use for constr. limited to 149,593 tons.
[2] Struc. use for constr. limited to 145,120 tons.
[3] Struc. use for constr. limited to 99,000 tons.
[4] Includes 500 tons for Kansas flood relief.

BRIDGE COLLAPSES under pressure of 82-mi-long ice jam in the South Saskatchewan River at Swift Current, Sask. After photo was taken the three center spans broke from the 1,250-ft, $1-million bridge, and disappeared. (Wide World photo)

Ice jam topples bridge

Three piers and four spans gave way to an 82-mi ice jam on the South Saskatchewan River. The piers and spans were part of a year-old, million-dollar bridge near Swift Current, Sask.

Huge ice cakes had been ramming the bridge for nearly a week. Just before dawn on April 6, the structure collapsed. The broken sections floated down the river on the ice for a short distance and then disappeared beneath the water.

No injuries have been reported. The bridge was located 35 mi north of Swift Current and provided the only link between that town and the northern part of the province. It was a concrete and steel structure that had taken two years to build.

• **Other flood news**—Ice cakes, said to be as big as houses, surged down the Missouri River at Bismarck, N. D., clearing the channel and dropping the crest of the river two ft. It was still three and a half ft above flood stage Monday, however, and the Weather Bureau warned of fast melting snow and ice adding to the waters.

Power expansions continue upswing

There's something new under the sun in Florida—outdoor generating plants being built by Florida Power and Light Co.

The company's new 155,000-kw steam electric plant at Cutler, on Biscayne Bay, 15 miles south of Miami, is all outdoors except control facilities, machine shop and offices.

The company's $332-million, ten-year plan for system and plant expansions include nine more generating plants and these, too, will be outdoors.

The company's engineers decided on the open air policy after more than ten years of experimentation. When the Miami Beach plant was expanded in 1940, the added generator was enclosed in a building but the boilers were left uncovered. Things worked out all right, so when the Miami plant was enlarged in 1945, boilers and generators were both erected without structural covering.

• **Largest generator**—Newest of the firm's expansions is a 75,000-kw generator now being installed at the Cutler plant. It is the largest and most powerful single electric generator ever erected in Florida. Transporting it to the plant site gave Florida East Coast Railway Co. plenty of headaches.

One section of the generator, weighing 254,000 lb, was carried on a specially designed flatcar with extra wheels and trucks. It had to follow a carefully charted route to avoid tunnels and sharp curves, and was moved only during daylight.

When assembled, the 800,000-lb unit built by General Electric will rest upon a 563-ton reinforced concrete pedestal. The pedestal was recently completed in a continuous nine-hour pour of 6,000 cu yd of concrete.

• **Other highlights in power**—The Union Electric Co. of Missouri plans to spend about $40 million for various construction and improvement projects during 1952, it was disclosed last week. Nearly $17 million of the total is to be spent on the new Meramec plant being built in the southeastern tip of St. Louis County.

With nearly $48 million spent in the last six years on its expansion program, California Oregon Power Co. plans to continue outlined new construction during 1952 to 1954 at an added cost of over $41 million. The 1952 program includes completion of the Soda Springs and Fish Creek plants, and start on Clearwater plant No. 2. Completion of Clearwater No. 1 plant is set for early 1953.

Bids were opened April 2 for construction of Folsom power plant on the American River 20 mi east of Sacramento, Calif., with Guy F. Atkinson Co. apparent low bidder at $5,772,959.

The power plant has a designed capacity of 162,000 kw, which will be fed into the Central Valley Project transmission system near Sacramento. A 96 x 228 ft reinforced concrete building will house turbines, generators, and controls equipment. It will be 111 ft high, mostly underground, a type of construction planned to utilize every foot of head from Folsom Reservoir.

Construction of the plant will entail excavation of 725,000 cu yds of rock and earth, and installation will require 3,330 tons of steel for reinforcing, framework, gates and pipe. The completed building will contain 41,000 cu yds of concrete.

• **Submarine cable**—Contracts for scale models of a 230-kv submarine power cable proposed for 1954 construction under Puget Sound north of Seattle, Wash., have been awarded by the Bonneville Power Administration. The cable will be the world's largest high-voltage submarine line.

Plans call for welding 10-in. steel pipe into a continuous length on shore, floating it into position, and sinking it to the bottom of the channel. When the pipe is in position and shore terminal installations are completed, the cable will be pulled through the pipe on a series of conveyor-like cable carriages and anchored in place. The pipe will be filled with oil at a pressure of 200 lbs.

To be 4.5 mi long, together with overhead lines on each side of the Sound, will link BPA installations at Snohomish substation with a proposed 230-kv substation at Kitsap, near Bremerton. The project, with substation, is expected to cost about $6 million.

• **Power review**—Construction applications for new projects that will use power now have to pass scrutiny of the Defense Electric Power Administration. Purpose of the new procedure: to forestall location of plants in areas of potential power shortage. The new CMP-4C application form is being revised to include a statement on power requirements.

Congress speeds action on construction measures

Gathering momentum as the session pushes on, Congress is grinding ahead on bills relating to construction. Here is a summary of the important ones:

I. The House . . .

. . . Rejected all attempts to cut Army civil functions on the floor and passed appropriation bill just as it came out of committee. However, the 28% slash made in committee–cutting funds from $692 million requested by the President to $492 million–is the biggest percentage cut made by the House in any appropriation bill yet acted on.

. . . Adopted S.S.J. Res. 140, permitting the Federal National Mortgage Association to make commitments to buy certain military and defense housing mortgages in the amount of $52 million above previous authorizations. Measure now goes to the White House.

. . . Cut off $800,000 approved by Appropriations Committee for federal grants to the states for water pollution control. Committee had reduced budget request by $100,000 and House action eliminates the funds entirely.

. . . In passing appropriations for State, Justice and Commerce Departments, left funds for Bureau of Public Roads untouched. Earlier the House Appropriations Committee had cut funds for BPR $93 million, leaving $359 million for fiscal 1953 operations. Most of cut made in funds was for federal aid to highways (ENR April 3, p. 27) on premise that shortage of materials, manpower and equivalent would curtail operations.

. . . In acting on civil functions appropriations, denied $4 million for Hartwell Dam on Savannah River designed to prevent a low-water crisis at the H-bomb plant. Committee reported to House that data provided failed to show that realistic flood control benefits will be achieved by project or that it had adequately planned.

II. House committee . . .

. . . Public Works Committee approved report of subcommittee authorizing $550 million for federal aid to highways for fiscal 1954 and a like amount for fiscal 1955. The amounts approved by the whole committee were identical to those approved by the subcommittee and were $150 million more than the Administration asked for and $50 million over funds voted for fiscal 1953.

. . . Construction money, outside of ship-building, came through unscathed in Appropriations Committee action on funds for the Defense Dept. However, these funds will have a second hurdle this week when the House will try to make further cuts above the $4.2-billion cut the Appropriations Committee took in the $51-billion-military budget request.

III. Committee hearings . . .

. . . Bailey Subcommittee of House Education and Labor Committee began hearings on need for federal aid to provide housing for next Septembers's public school population. Bureau of Education had estimated it will take $215 million in federal aid to provide necessary schools for next year's school crop. Funds were cut back by House to $135 million. Committee will concern itself, in hearings to run this week and lap over after Easter recess, on whether or not Congress should make up the $80-million deficit in school construction funds.

. . . Officials of Atlas Constructors have requested time to appear before the Senate Preparedness Subcommittee that investigated alleged graft and waste in construction of North African air bases. Lyman D. Wilbur and J. B. Bonny of Atlas say that the company has been defamed by testimony heard by the committee and asks opportunity to refute it. So far, Chairman Lyndon Johnson (D., Tex.) has been unable to schedule hearings, but says the Atlas people will be given a chance to be heard.

. . . The Johnson Subcommittee also plans to hold further hearings on alleged graft and waste on Project Bluejay–the Air Force air base in Greenland. The subcommittee has heard conflicting testimony on estimated cost of the base, ranging from a quarter of a billion dollars to a billion dollars and Johnson indicates that future hearings will be pointed at determining actual cost of the Arctic Air Force outpost.

. . . The Engle Subcommittee on Irrigation and Reclamation of the House Interior Committee continued hearings last week on the Hells Canyon Project. Subcommittee heard further testimony in opposition to H.R. 5743, to authorize the construction of the initial phase of the Snake River Reclamation Project and adjourned subject to call of the chair.

LT. GEN. LEWIS A. PICK continued his testimony before the Jones Subcommittee.

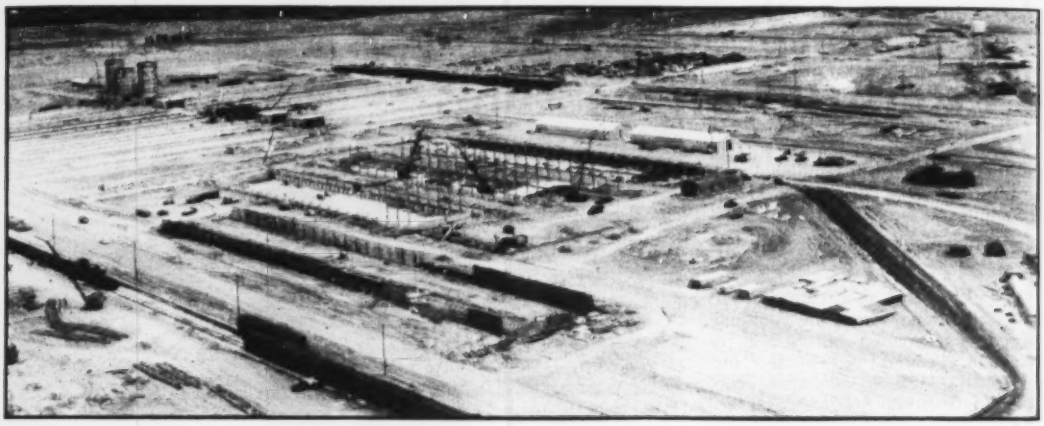
. . . The Jones Subcommittee of House Public Works Committee continued its special hearings on civil works this week at which it is considering de-authorizing part of the Corps of Engineers 3,000 backlog of authorized projects. Lt. Gen. Lewis A. Pick, Chief of Corps, continued his testimony. Subcommittee adjourned until April 22.

. . . House Committee on Banking and Currency held hearings on S2786 to permit progress payments of federal aid to slum clearance and urban redevelopment but held it over for further study. The bill would permit advance of federal grants to cover payments for condemnation of property, and would eliminate need for local sponsoring groups to get loans to finance this work.

Allotment analysts wind up DPA assignment

With mission accomplished, the Construction Analysis staff bowed out last week at the Defense Production Administration and departed for home.

In four and one-half months, the six-man committee of steel experts headed by James B. Steep produced notable results in helping to educate the claimant agencies on the realities of requirements, phasing and timing for construction steel.



UNDER CONSTRUCTION at Rockdale, Texas, is Alcoa's $80-million smelting plant. Community building will soon follow.

New plants breed building

Industrial construction under the mobilization program is beginning to slow down. But on its heels comes a surging wave of new community building.

In hundreds of new plant locations dispersed across the countryside (ENR Mar. 27, p. 24), new communities and new community facilities are springing up.

Here is an illuminating sample of what is in progress:

The headline in the Port Lavaca, Texas, WAVE announced: "City will Spend $100,000 on Water Improvements." The huge expanding Point Comfort Works, Aluminum Company of America, is located nearby. This type of headline has been appearing in newspapers serving Rockdale, where Alcoa is building an $80-million smelting plant; or in Saline County, Ark., where Alcoa's Aluminum Ore Co. is constructing a $55-million alumina plant at Bauxite.

These Alcoa plants make an interesting study in the tandem relationship between plant building and community development. For example, here is a rundown on some of the building projects which have resulted in and around Port Lavaca since construction of the first part of Alcoa's Point Comfort Works began in May, 1948.

• **More business**—Community growth generally can be reflected by increases in the number of business establishments. Dun and Bradstreet ratings show the number of Port Lavaca businesses has increased from 78 to 185 during the four-year period between 1947 and 1951.

Commercial construction projects include: A new appliance store building, a supermarket, three automobile agencies, a bank building, a drive-in theater, a furniture store, four service stations, a lumber yard, a drug store, two floral shops, a sign company, two tourist courts, five grocery stores and two drive-in cafes.

Numerous other existing buildings have been renovated and remodeled. A 20-bed hospital costing $253,000 and with a $38,000 nurses home, were built with county and Federal funds.

The Calhoun County Independent School District, which includes Port Lavaca, built a 20-room elementary school, and then, a year later, had to add seven rooms. Total cost was $230,000. Besides the school, the district made an $80,000 addition to the county high school, erected a $56,000 school cafeteria, constructed music and shop buildings costing $24,000 each, and built a bus garage costing $15,000 and an administration building for $14,000.

The City of Port Lavaca, since 1947, has built a two-story City Hall and Fire Station costing $30,000, a Corporation Court building costing $5,000 and a warehouse for $10,000. Other municipal improvements include a $128,000 sewage treatment plant, and two water storage tanks with a total capacity of one million gallons. The storage tanks cost a total of $46,000. A few weeks ago, a special session of Port Lavaca's city council awarded a paving contract for 96 blocks.

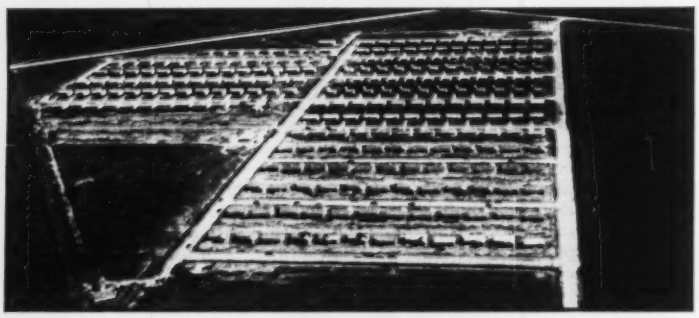
• **For living**—Home construction, too, has boomed.

When the plant was built, the company began a development of 75 staff houses near Port Lavaca.

Across Lavaca Bay, 138 more were built near the plant area, and now, another 105 homes, as well as a recreation hall, are being added at Point Comfort.

The DeShazor Construction Company, a Port Lavaca concern, also has done large-scale building. So far, the firm has erected 70 homes inside Port Lavaca, independent of Alcoa's program.

• **At Rockdale**—Because the Rockdale



NEWLY BUILT Point Comfort Village contains 243 homes in all. (Alcoa photo.)

plant was started only last fall, full impact of secondary construction has not yet been felt. But already, a modernistic 20-unit tourist court has been built. The First State Bank of Rockdale is expanding its offices and work on a new clothing store is underway.

The Texas Highway Department has announced that it will spend $272,000 to widen 11 mi of U. S. Highway 79, north of the plant site. A secondary road toward the plant area also will be built.

• **In Arkansas**—The story is the same at Alcoa's Arkansas operations.

The effect on the nearby city of Benton has been marked. The city-owned public utilities and the school system have been hit hard since the first aluminum plant was built in Arkansas during World War II.

Construction of the Hurricane Creek plant in 1942, near Benton, brought an influx of new residents into the area. Since then, Benton's population has doubled.

In 1946, Benton issued $390,000 worth of revenue bonds to build sewage and water lines. Three years later, the community issued $342,000 worth of bonds to finance a disposal plant, an expansion of the water supply and to buy new engines for its municipally owned power plant.

A year ago, Aluminum Ore Company began work on its new alumina plant, creating a need for more water lines, a water treating plant and a filter system. That issue amounted to a quarter-million dollars. So far this year, Benton has given bonds totaling $315,000 for two new power plant turbines.

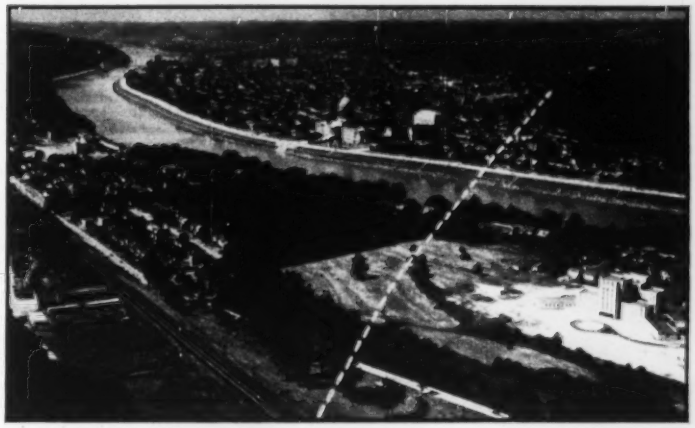
Benton schools have undergone similar expansions.

During the 1938-39 term, there were 1,392 students enrolled in the Benton schools. That number jumped to 1,837 during the 1948-49 term and reached 2,285 last year.

By the end of 1952, officials estimate there will be about 2,650 students.

Since 1947, the City of Benton has added 28 classrooms to the school system. A grade school, costing $325,000, was built and the city has a $450,000 high school in the planning stage. Additional grade schools will have to be built. For the current term, 11 new teachers were hired.

To help provide enough housing, Aluminum Ore Company is completing 44 houses in Benton for occupancy by members of the new plant's supervisory force. The city has been declared a critical housing area and the FHA has authorized the construction of 250 houses for renting.



THE DOTTED WHITE LINE traces the route of the new high-level bridge proposed as a terminus of the West Virginia Turnpike. In the right foreground is Charleston's new Memorial Hospital. Prominent near the center of the photo is the state capitol. (Charleston Daily Mail.)

Highway planning active

Construction will begin on the $96-million West Virginia toll turnpike by the middle of this month. The financial problem of the turnpike commission—a hurdle that had to be overcome—was solved when a nation-wide syndicate of investment bankers made a firm commitment last week to buy the turnpike bonds.

Controversy flared last week over the proposed Charleston terminus. The turnpike commission disclosed that the toll road would end with a new high-level bridge that will cross the Kanawha River somewhere between the Kanawha City Bridge and the state capitol.

These plans immediately drew a blast from Charleston's Chamber of Commerce, which charged that the bridge "must pass directly over, or tower above established residential areas on both sides of the river, vitally and adversely affecting, for residential purposes, values long since established."

• **Other highway activities**—Construction funds totalling a record $30.6 million tentatively have been allocated by Virginia's State Highway Commission for the fiscal year beginning July 1. It represents an increase of $3.3 million over the current fiscal year.

After study of highway legislation passed by the 1953 General Assembly, Virginia State Highway Department attorneys say the highway commission now has authority to build and operate toll roads.

Seeking to minimize further breaking up of Utah's waterlogged, chuckholed highways, the State's Road Commission clamped emergency speed and weight restrictions on most major routes. Heavy snows and thawing weather pushed up the water table, softening many roadbeds. Truck and bus speed was cut to 35 mph on affected highways, with legal load limits cut from 18,000 lbs to 16,000 lbs on single axles, and from 16,500 to 15,000 lbs per axle on dual axle trucks.

Work on Indiana's first experimental road—a 10-mi stretch on U. S. 31 between Columbus and Edinburg to test reinforced concrete against flexible "blacktop"—will start next month.

• **Parkway**—Bills providing for completion of the 165-mi Garden State Parkway as a toll facility were passed by the New Jersey legislature last week and sent to the governor for signature. A three-member authority will be created within the State Highway Department to complete financing and construction.

Bids will be received May 7 by the Louisiana State Highway Department for construction of the $5.2 million South Claiborn overpass in New Orleans. It will link with the proposed Pontchartrain expressway.

Design details for the 10.6-mi $28-million Toledo, Ohio, expressway were released last week in a report by Howard, Needles, Tammen & Bergendoff, consulting engineers. Costs are estimated at $7.4 million for the roadway; $9.4 million for 38 bridges; and $7.1 million for Merritt, Chapman & Scott Corp., which has the $2.1-million contract for building the piers of the New Maumee River cross, is at work on construction now.

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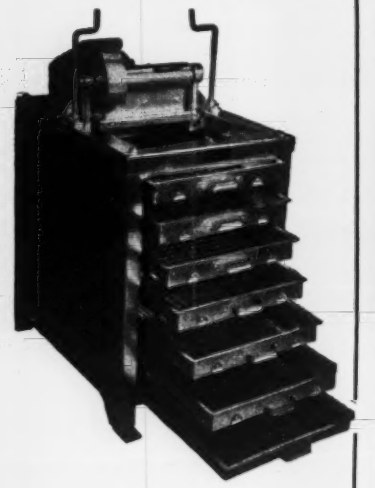

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JAMES D. MARSHALL, industry member of CISC, compromised "for the good of the industry," but he still is against nation-wide welfare funds. (ENR staff photos)

Construction leaders fight spread of pension funds

Although he vigorously dissented from the recent health and welfare decision of the Wage Stabilization Board, James D. Marshall, of the Associated General Contractors, is of the opinion that worse trouble was avoided.

In his opinion the industry members of the board had to sacrifice something in order to get full year agreements from the labor members. If all bargaining agreements went out with the expiration of the present act, or were for periods shorter than a year, the resulting confusion would have been calamitous to industry, he declared.

An unwritten but well-known industry opinion also holds that the national policy of health and welfare is bad for the industry, but not as bad as a national policy of pensions.

Pensions, they say, can only mean a system of seniority. And seniority will mean the end of the construction industry's freedom to choose the best man for the job.

Marshall, an industry member of the Construction Industry Stabilization Commission, reiterated his objections to the recent ruling (ENR March 20, p. 24) of the WSB.

• **Objections**—1) Having placed a ceiling on wages to avoid inflation, the WSB is defeating its own purpose by this ruling.

2) All unions regardless of size or ability to sustain such a program will try to participate.

3) The benefits program outlined by the CISC would go far beyond the plans permitted other industries.

4) The program ignores the peculiar conditions of the construction industry. Seasonality, intermittent employment, migration of workmen from job to job and from one employer to another and movement from densely populated areas to isolated areas are all characteristic of the construction industry.

5) But most important, using health and welfare benefits in place of a wage rise is wrong for the industry. Workers in the construction industry have been compensated for seasonality, intermittent employment, and need for migration by a higher wage scale.

• **Co-operation with labor**—The AGC is always willing to stand with labor for the good of the industry, Marshall said.

(*Continued on page 35*)

"The BIG SAVING was FOSTER RENTAL PILING"

On complicated 3-sided cofferdam for the $5 million East Bronx Unionport Bridge Construction.

Says John Ury, Project Manager for Contractors:
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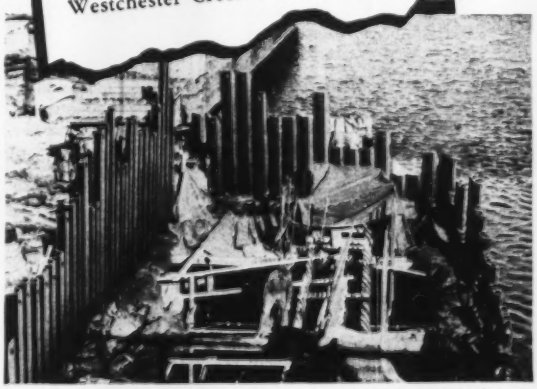
Construction started in 1949, and skillful driving of 30 to 45 ft. Interlocking Steel Sheet Piling by these 2 contractors made this an economical, successful job. Unionport Bridge crosses Westchester Creek in East Bronx.



Rental Piling had to be driven considerably below the bed of the creek, with extra reinforcing to protect against swells.

An interesting installation of piers had to be constructed atop 35-year old existing caissons. Here was a tough water seepage problem in a complicated 3-sided cofferdam — approximately 1,000 gpm had to be pumped out of the cofferdam by two 6-inch pumps. Steel Sheet piling was needed — on time — in the exact section and lengths (30 to 45 feet). And Foster had it — just what the job required. A phoned order — a prompt delivery, a dependable quality — and a low cost, requiring no huge purchase investment on the part of the contractor, made FOSTER RENTAL PILING the 100% answer for this job.

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Take a husky Dodge 2¾-ton truck, for instance. With Twin Carburetion and Exhaust System, its sturdy high-compression engine turns out *137 horsepower!*

It's mighty dependable power, too. Scores of up-to-the-minute features result in low-cost operation, long life, and year-'round dependability. Consider, for example, such extra values as stellite-faced, sodium-cooled exhaust valves . . . surface-hardened bearing journals . . . intake valve and exhaust valve seat inserts . . . and others!

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So . . . why not get a truck that's designed especially to take sweat and strain *out* of your toughest jobs and put extra profits in. Get a Dodge "*Job-Rated*" truck! See your nearby Dodge dealer—*soon.*

DODGE "Job-Rated" TRUCKS

"I think Connecticut may have the answer . . ."

He said the contractors were behind his good friend Richard J. Gray (ENR March 27 p.39) in his fight for S. 1973 although the bill is not exactly what contractors want.

Of course he welcomed help in fighting the Wunderlich type of decision.

As an example of co-operation between labor and management on a health and welfare program Marshall pointed to Connecticut. He cited the state-wide program as one that avoids the evils of national programs and yet is large enough to be stable financially.

Connecticut benefit plan

Ever since May 15, 1950 the major building trades of Connecticut and the state Associated General contractors organization have jointly operated a health and welfare fund on a state-wide basis. How does it operate? Is it working? The answers are not all in yet, but here is a partial report.

The union member participating in the fund is entitled to:

- Life insurance to the value of $1500.
- Accidental death and dismemberment benefit under this policy of an additional $1500.
- Daily hospital benefits of $11 plus allowance for miscellaneous hospital charges of $110 with a total hospitalization allowance of $451.
- Weekly sick benefits of $25 up to 13 weeks.
- Surgical benefits up to $250.

In adition the immediate family of the union member is entitled to share in hospitalization (including maternity assistance) up to $369, and in surgical benefits up to $250.

- **Who pays and who benefits**—The entire fund is under a board of six trustees—three from labor and three

(Continued on next page)

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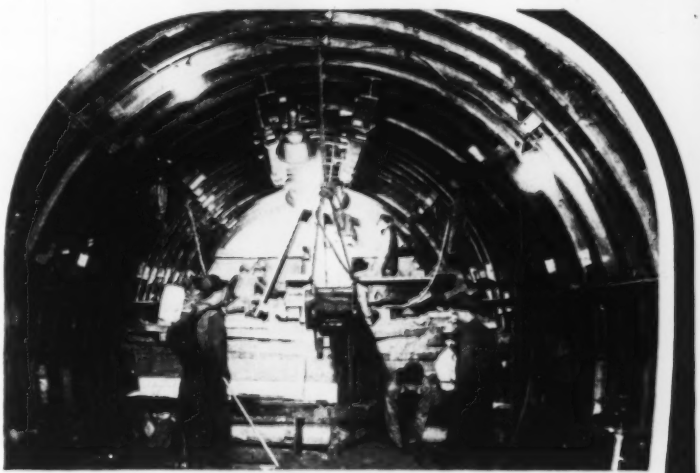

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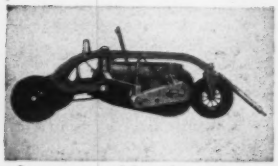

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Labor . . .

from management. The cost of the fund is borne by a contribution of 7¢ paid by the employers for each hour of work performed by labor.

During the period Aug. 14, 1950 to Oct. 1, 1951 the benefit fund paid out $320,253 to its members. Most of it in hospital daily benefits.

• **Financial control**—Aetna Life Insurance Co., of Hartford, is underwriting the fund.

The trustees are still building the reserves of the fund, and are following a conservative policy in which almost half the income is put into the reserve. Despite the size of the reserve fund the trustees have increased benefits without increasing the 7¢ contribution.

• **Everybody is for it**—Discussing the fund and its operation with both labor and management a surprising amount of agreement is found. Without exception those responsible for the fund agree that it is working well.

Perry Rodman, administrator of the fund, declared that the Connecticut plan has received a lot of inquiries from other labor councils on the working of this state-wide plan.

He believes that it is the only statewide plan with such extensive coverage. Although not every local is in the plan every trade with the exception of the mechanical trades is represented.

"Pirating" law reverses situation

J. D. COOPER executive director SSB

Without fanfare, an amendment to the extension of the wage-price controls bill has been passed by a Congressional committee.

The amendment, which has been described as a "license to 'pirate'," would make a major change in the relationship of consulting engineers and large industrial engineering organizations.

If passed by Congress, the amendment would exempt from salary controls architects, engineers and accountants employed by consulting firms of the same profession. In effect this would reverse the present situation in which large industrial organizations have been luring engineers with promises of high-pay jobs.

Here's how the amendment was born:

Last year the salary stabilization law exempted from control lawyers working for lawyers and doctors working for doctors.

An Ohio engineer came to Sen. Bricker and asked him to do the same thing for engineers. Bricker tried to get through an amendment but failed.

This year Bricker teamed up with Ives of New York who wanted exemption for accountants. Bricker also took architects under his amendment. They offered one amendment for the three professional groups.

After the senators got the ball rolling, the National Society of Professional Engineers, the American Institute of Architects, and the Engineers Joint Council joined in.

The amendment passed the Senate Banking Committee unanimously. It should be noted that the amendment will not lift controls from an engineer employed by an industrial concern, or an architect working for a contractor.

• **Opposition**—In an interview with ENGINEERING NEWS-RECORD Joseph D. Cooper, executive director of the Office of Salary Stabilization, declared his opposition to the amendment.

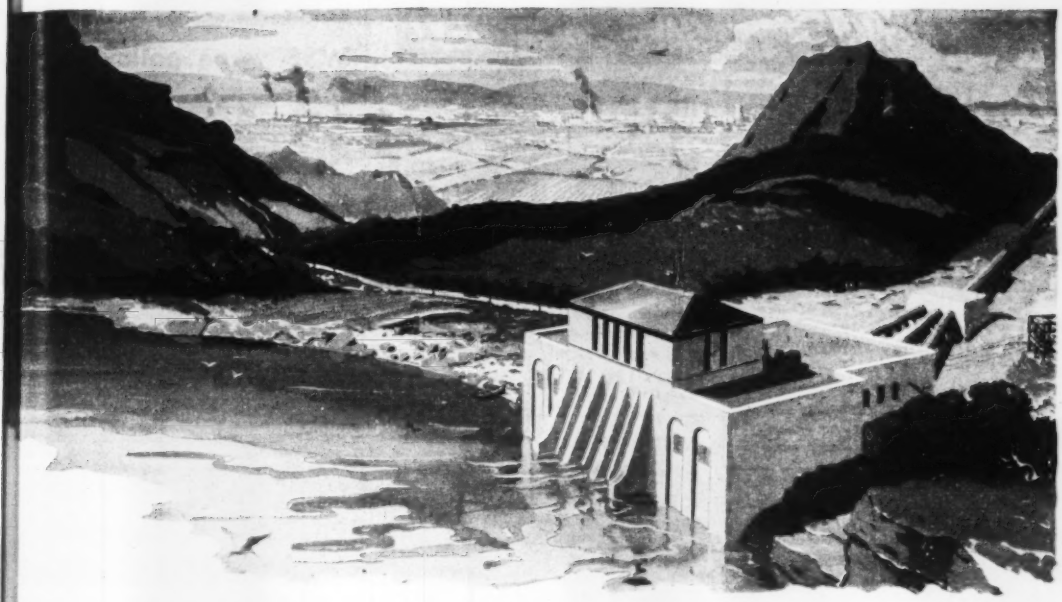
SSB is trying to put an end to job-hopping and pirating of engineers.

The problem of keeping engineers in the job resolves itself into the fact that the younger men are able to bargain for more money in the present tight market. The older engineers having more of a stake in their jobs—pensions, stock shares, seniority—are being compressed by the mobil younger men who ask and receive top pay, and who move around following the high-pay jobs, he said.

It might even lead, he declared, to meaningless subterfuge on their part in setting up separate consulting firms.

Cooper also pointed out that "midnight engineering shops" might spring up to peddle engineering talent to the industrial firms.

(*Continued on page 38*)



WHEN Millions Live As One

ADVENTURESOME folk, since the beginning of time, have migrated . . . Settling in tiny clusters . . . Spreading spider-web fashion to dot the land with villages and towns . . . While others pressed forward, facing dangers concealed behind each rock and tree!

But with the growth of cities, new perils arose and multiplied . . . People were living too closely together . . . Epidemics and pestilence exacted their toll . . .

Then science and modern machinery rescued them from exposure to disease emanating for impure water and unsanitary waste disposal . . . And, today, *millions live as one!*

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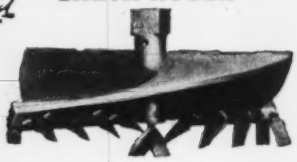

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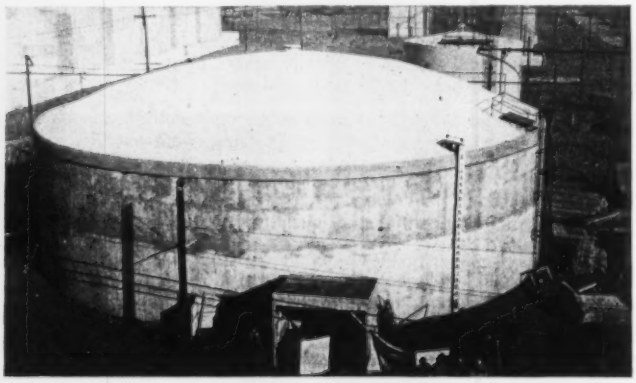

ANOTHER CEMENT GUN CO. PRE-STRESSED WATER TANK

We built the above pre-stressed "GUNITE" tank in 1944. It is 90' in diameter with a water depth of 25'. The wall and dome roof of this tank are all "GUNITE". This is just one of scores of similar tanks designed and built by us. We will be glad to discuss your tank needs with you and submit designs and estimates for your consideration. Our method of pre-stressing the hoop rods in the wall and in the dome ring assures a bottle-tight and crack free reservoir. Our 64-page bulletin A2400 describes this method of construction and also scores of other profitable uses of "GUNITE". A copy will be sent free upon request.

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Labor . . .

WSB wage policy forges new contracts

Reports from all over the country indicate that the new construction wage policy of the Wage Stabilization Board—up 15¢ an hour on wages and 7½¢ for welfare benefits—is having a profound effect on all union-management negotiations.

One of the first wage settlements under the new wage policy has been made in Washington, D. C.

Significantly, the agreement between the Construction Contractors Council—representing 150 area contractors—and the District of Columbia Laborers Council, AFL, provides for a staggered 15¢ increase in three steps.

- Five cents when the Construction Industry Stabilization Commission approves the agreement.
- Five cents more on July 1.
- Five cents more on Sept. 1.

The contract averted a threatened strike of 5,000 laborers on commercial construction, and is for 13 months until April 30, 1953. Current hourly wage is $1.60.

• **San Francisco Bay area**—Some 15,000 AFL carpenters in the San Francisco Bay area went on strike recently, slowing construction on hundreds of jobs in San Francisco, Alameda, San Mateo and Marin counties.

The union is asking an immediate 15¢-an-hour increase, to $2.60 an hour, under an interim wage reopening clause of their contract, which expires June 15.

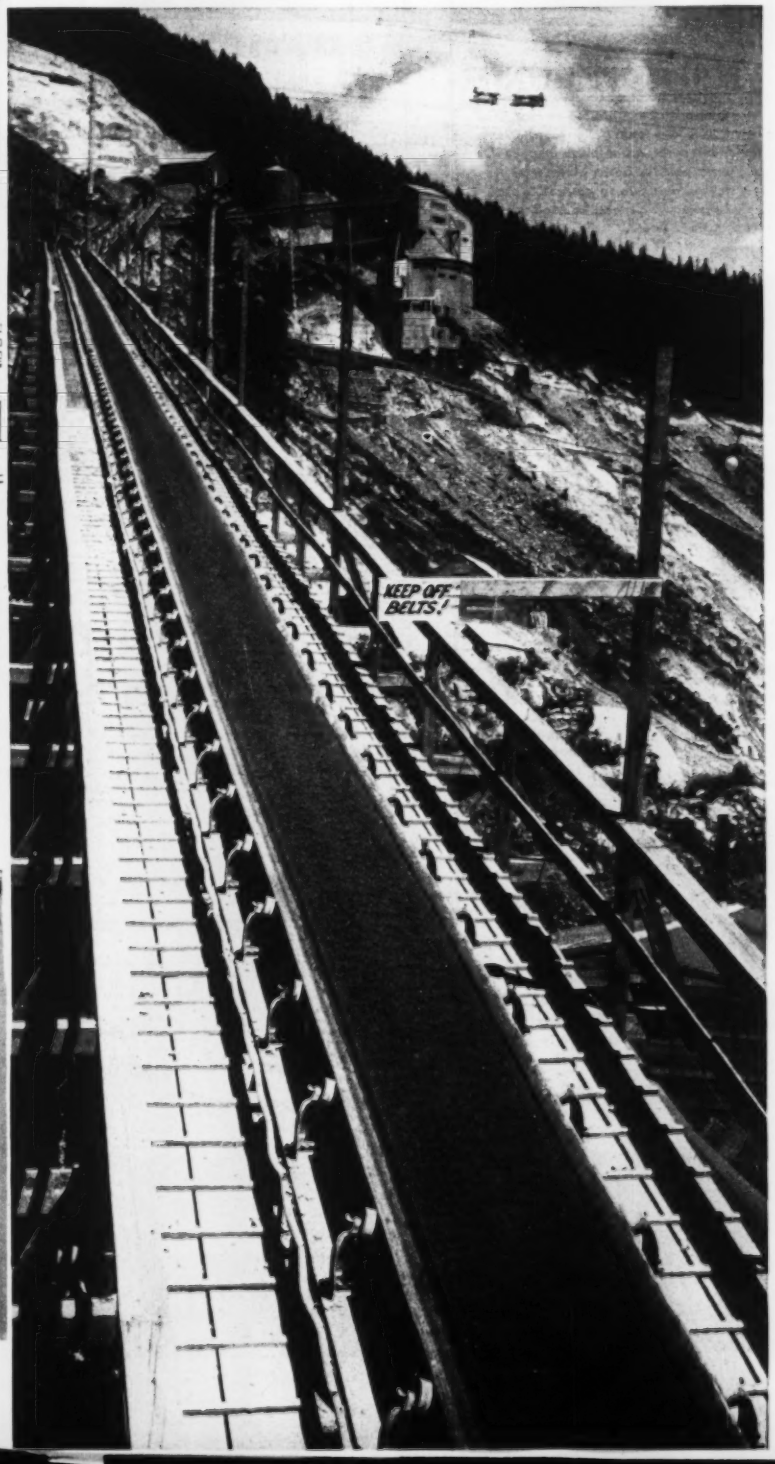
• **Knoxville, Tenn.**—In Knoxville, AGC President J. E. Willard reported that his organization had bowed to a demand of the Knoxville Building Trades Council representing some 18,000 AFL members for a 15¢ blanket increase for each worker-hour. The new scale will become effective at the expiration of present contracts—most of which expire May 1.

• **Youngstown, Ohio**—Negotiations for building trades wage increases in Youngstown have been upset by the WSB ruling. WSB increase is far in excess of those which had been recommended by the local 10-member labor management committee of the industry.

Contract expires on May 1, and the committee had recommended an increase—including 6½¢ welfare money—of about 13¢ an hour. WSB cumulative increase is almost 32¢ an hour (including 10% catch-up).

LINK-BELT research and engineering . . . . Working for Industry

High speed "highway" for low costs



Millions of tons of bulk materials now ride on belt conveyors engineered and built by LINK-BELT

For bulk materials handling, belt conveyors provide remarkable initial economies. And in many cases operation and maintenance cost far less than any other method of transportation.

Belt conveyors handle huge tonnages, because the material runs at high speed in a continuous stream—24 hours a day, if desired.

Initial cost is low, because there is no need to carve out hills or fill in low spots —no need for heavy bridges over obstructions. Belt conveyors are light in weight and operate in narrow or low passages . . . up or down steep grades. They are inherently long-lived, requiring little maintenance.

Link-Belt is a nation-wide organization with broad experience in the engineering, manufacture and installation of materials handling and power transmission machinery. Link-Belt is prepared to take care of every detail from planning through erection.

◀ *Link-Belt belt conveyor system at Hungry Horse Dam (Mont.) carries 900 tons per hour of blended sand and sized aggregates up a steep canyon wall to concrete mixing towers.*

12,740

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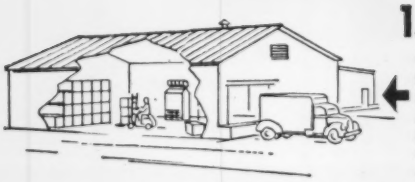
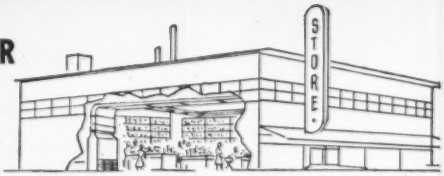
A POSITIVE *SOLUTION* FOR



1. INDUSTRIAL CENTER

Where space is limited or roof heat losses are unusually high, Dravo Heaters require minimum space . . . no expensive boiler plant; roof heat losses low due to controlled recirculation of air; can be used with or without ducts.



3. SUPERMARKET

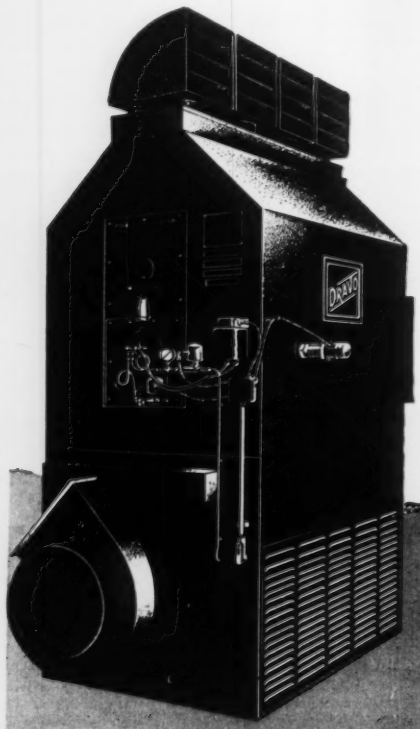
In heating, ventilating and air conditioning large areas, Dravo Heaters can tie in with air conditioning system by using same duct work, provide year-'round comfort.

2. FOUNDRY

Negative pressures, caused by exhausting foul air, are balanced by tempering fresh outside air with Dravo Heaters. Atmosphere is kept healthy, constant temperatures are maintained, worker efficiency improves.

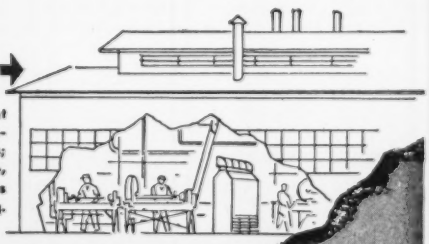
4. MEDIUM-TEMPERATURE CURING

In controlling temperatures and air moisture content in process manufacturing, Dravo Heaters have automatic controls, maintain constant temperature, can recirculate air to control curing process.



5. MACHINE SHOP

For comfort heating large plant areas, Dravo Heaters have maximum air throw in all directions; can be turned off during idle time, warm up quickly, keep fuel costs low, can heat 4,000 to 20,000 sq. ft. area, no duct work required.



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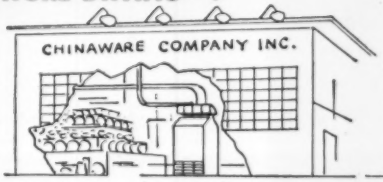
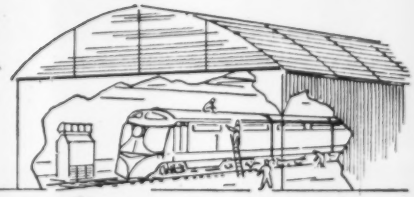
HEATERS.....

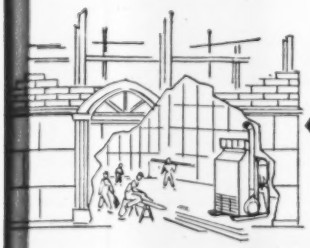
3 DIFFERENT HEATING PROBLEMS!

6. MEDIUM-TEMPERATURE DRYING

In removing moisture in drying operations, Dravo Heaters provide low-cost heat at even, predetermined temperatures; are automatic in operation, can use gas or oil, are readily converted.







7. TEMPORARY HEATING

For building construction projects where ground temperature must be kept above freezing, Dravo Heaters are quickly installed, easily moved to any location; can be later used as permanent heating plant for the new building.

8. RAILROAD REPAIR SHOP

In providing ample heat for repairmen in large buildings, Dravo Heaters keep heat where it's needed . . . at the working level; directional nozzles easily adjusted to suit conditions; heaters can be mounted on walls or hung from ceiling in any position.

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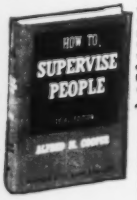

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GERALD E. ARNOLD, director of NPA's Water Resources Division, thinks that water and sewage plants should have an M-order of their own. (ENR photos by Compton)

Water and sewage plants to get more materials

Builders of water and sewage works will shortly be permitted to self-certify much more construction material than they have been able to in the past.

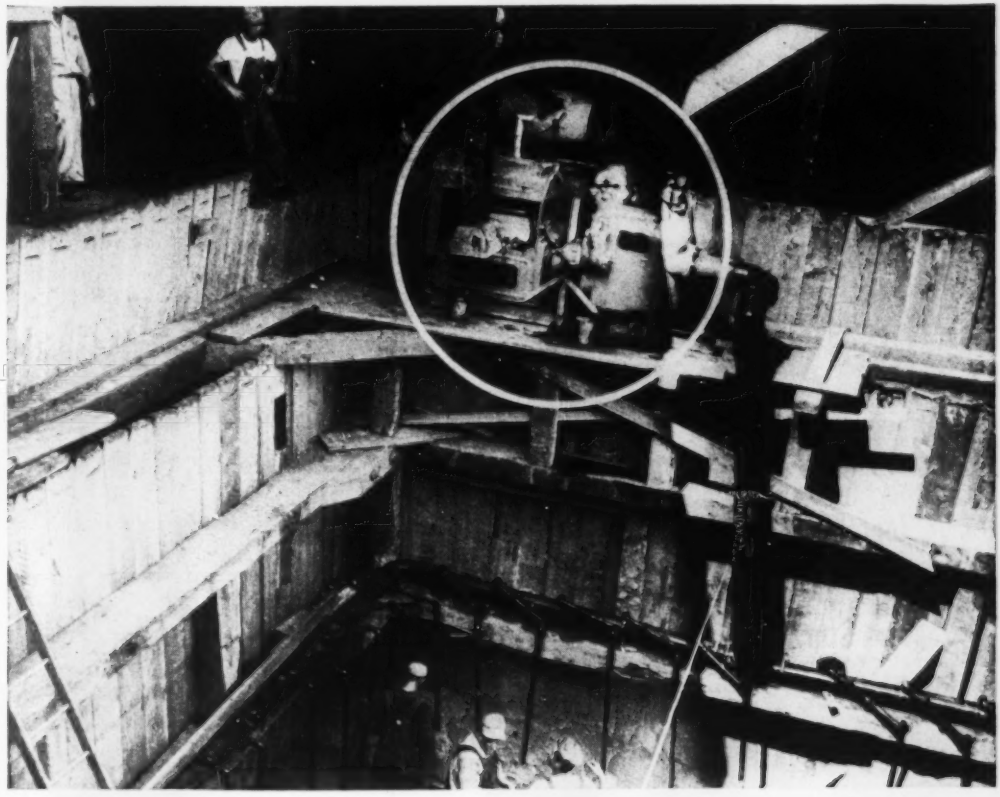
Much of this relaxation in control will be due to the efforts of Gerald E. Arnold, director of the Water Resources Division of the National Production Authority.

Mr. Arnold's efforts for the last five months have been directed to the end that the industry would get special consideration when it came to receiving the materials it needs to carry on

(*Continued on page 45*)

"We approve of saving materials, . . . but not of untried experimental designs.

STANG DRIES "BOILING" EXCAVATION THREATENING UNION PACIFIC TRACKS



AFTER six frustrating weeks, "boils" in the bottom of an excavation below ground water level in Missouri River silty sand threatened to collapse the wood sheeting structure and undermine the railbed under two "live" main line tracks. Stang Wellpoint equipment ingeniously installed in restricted work space eliminated the "boils" and predrained the surrounding area. Within ten days the excavation was completed in dry, stable soil and form work started. With a second Stang wellpoint installation, an identical excavation was completed in the dry within two weeks, sharply cutting costs. No wonder construction men are "sold" on Stang equipment and service.

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I write plain regulations, . . . but I can't control the rewriting of them.

its essential activities.

"We have not been able to get a special M-order for our industry, such as the power and light industry has, but we have been able to relax controls a little," he told ENGINEERING NEWS-RECORD.

Relief will come in the form of special orders amending Controlled Materials Plan Regulations 5 and 6. Formerly 5 tons of steel and 200 lbs of copper was all that could be gotten under the self-certification plan, soon 25 tons of steel and 1,000 to 1,500 lbs of copper will be available.

• **Other relief available**—Because the operation of water and sewage plants is often on a 24 hour basis, a special effort was made to increase the MRO (maintenance allotment) available to them. At present the limit of MRO is 120% of the dollar value of materials used during 1950.

The new series of orders may also lift the limit on the amount of inventory which can be held by a sewage or water plant.

• **Job of resources division**—When the NPA was first organized, the water and sewage facilities were handled by several different agencies. Dissatisfaction with this arrangement led to the creation of the Water Resources Division in the summer of 1951 under Harvey S. Howe, who held the post of director until Arnold took over about six months later.

The division has passed on 1,600 cases each quarter, alloting over 200,000 tons of steel each quarter. In addition it has controlled $500 million in construction volume.

The division controls materials for any sewage or water plant which services over 200 customers. Arnold estimates that of the country's 30,000 water and sewage plants some 15,000 are in this category.

All sewage plants and about 85% of all water plants are publicly owned.

• **Operations**—Arnold said that the division has never turned down a municipality that wants to get at a primary source of water. They have turned down some treatment plants that appeared to be unessential at this time.

The largest project rejected by the division was the proposed Chicago filter plant, a $50-million job which would have soaked up much available material. To keep the project current some controlled materials have been allotted to get the foundations and some preliminary work done.

It should be noted that this project can probably get going and build for a year without actually needing controlled materials.

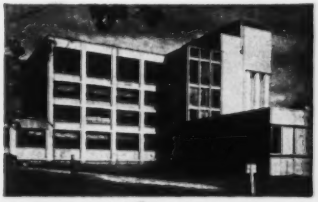
Most difficult job is handling stream pollution cases. Most of these have had to be deferred. This has led to some hardship because many of the municipalities are under court orders to clean up the waters around them.

• **Saving materials**—The division does not approve of radically new types of water treatment plants or sewage disposal units. It advises that standard design practice be followed: Skimping on size of water mains to conserve materials is poor practice since they will fail to give adequate fire protection.

Arnold advises that certain conservation measures should be taken:

Copper service tubing to connect from the main to the property line should be used only under pavement. The division investigated, and then discarded, the suggestion that thinner walled tubing be used for such connections, saying that no real saving would result.

(Continued on page 48)



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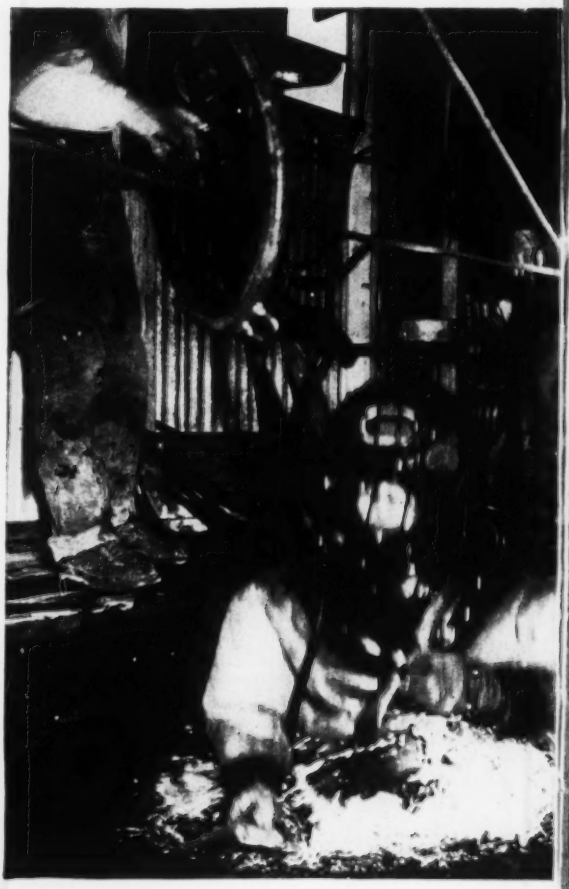
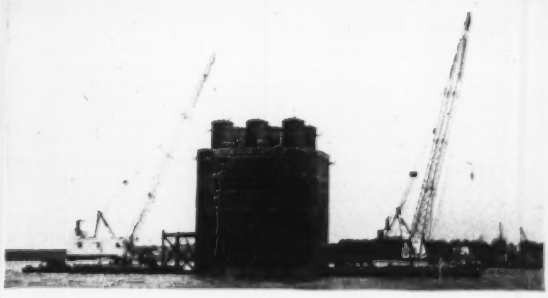
Pictures from Industry

These are exerpts from stories in the current issue of American Hoist & Derrick Company's house magazine, the American Crosby Clipper. If your business involves the use of hoists, derricks, locomotive cranes, revolver cranes, Crosby Clips or other equipment in our line, why not let us put your name on the mailing list. Use coupon on right hand page, to start with the current issue.



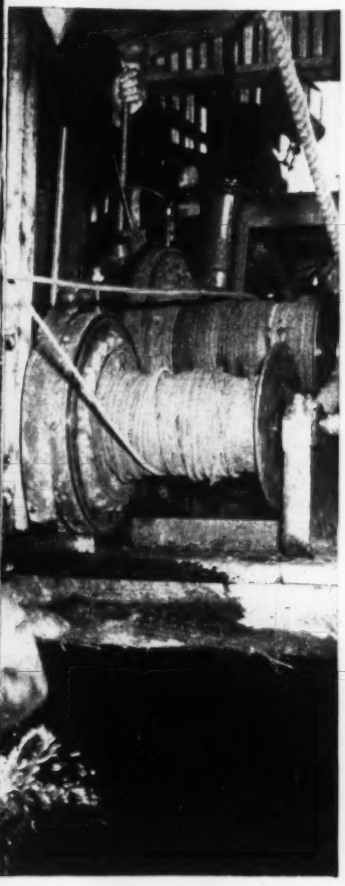
Underwater logging. Working blind, in swirling mud, divers of Shelton Salvage Co., Shelton, Washington, are harvesting 2,000,000 feet of sunken logs from Oakland Bay. Tremendous power of a barge-mounted American Hoist is used to loosen and bring up the logs. On land and sea, American Hoists get the toughest assignments because they're the toughest built.

Builds as it works. At Marietta, Ohio, new plant of Electro Metallurgical Co. keeps right on producing as construction work enlarges capacity. American 40-ton DiesELectric Locomotive Crane shown here is now used for both construction and production. Its high travel speed, smooth power, and design that eliminates tons of wearing parts make the DiesELectric remarkably economical for either job, or both.



Big-scale teamwork. Working as a team, two American Revolver Cranes handled caisson work on the Yorktown, Va. bridge. Steel guide towers were placed first. Caissons were lowered through towers. Dredging and concrete pouring were then completed by the versatile floating cranes.

The AMERICAN HOIST line includes: Hoists • Derricks • Locomotive Cranes • Crawler Cranes • Revolver Cranes • Portable Material Elevators



Picket boat takes to air. Midway between land and sea, this new type Coast Guard boat is on its way to Houston, Texas for port patrol duty. Lift from rail car to salt water is handled by an American Diesel Locomotive Crane—every expert's choice for smooth, precise handling of valuable heavy loads.

New crawler crane. Best news of the year for contractors is the new ¾-yard American Crawler. Anti-friction bearings in brake linkage save 60% of leg effort for operator. Many new speed and convenience features make it a phenomenal money-maker. Machine is available as shovel, pull shovel, dragline or crane.

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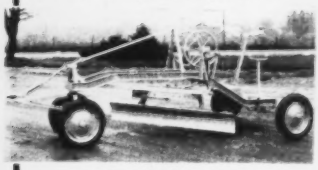
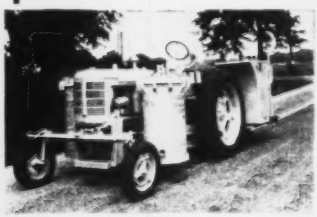


DRAWN GRADERS

Shown above is Model 7-A, one of several pneumatic-tired, light graders in the Gledhill line. Leaning wheels, adjustable pitch and blade height, lower price—some of the features of these general purpose graders.



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New accuracy and economy in painting traffic lines are made possible with this 1952 model. Paints one to three lines in 3" to 6" widths—any pattern. Gledhill engineering and quality fittings put this marker out in front!

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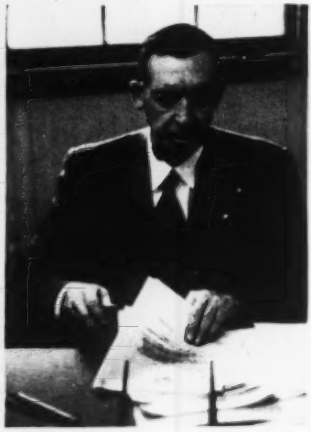

WE TRY to process requests promptly.

It advises careful investigation of the use of plastic materials for service connections.

Another consideration should be that of the use of aluminum for copper in transmission lines.

The division is insisting on the use of reinforced concrete where possible to save structural and plate steel. Elevated tanks would use almost all the allowable plate steel if municipalities were permitted to build them indiscriminately.

Use of tile tanks and tile lined pipe is being investigated in connection with the control of waste from pulp mills, which can be highly corrosive.

On one point Arnold was quite emphatic. "No cast iron water meters!" He pointed to an eight year old useless meter that was used as a "horrible example" of using substitutes for substitutes sake.

• **Metering as a conservation measure**—Arnold was also emphatic in his statement that one of the best indirect methods of controlling use of materials is in the use of meters for water supply.

"If you cut down the waste of water you will eliminate a lot of plant activity and ultimately save materials for repairs and maintenance," he declared.

He pointed to the City of Denver, Colo., which uses about 250 gal per person per day compared to the national average of 120 gal. Denver has no meters. "Any city can take 30% strain off its water plant by using meters," he declared. "The resulting savings in maintenance materials would be great."

• **Gerald E. Arnold**—Mr. Arnold brought to the Water Resources Division experience in the industry that includes work in construction of facilities, manufacture of components, operation of municipal plants, and supervision of governmental utility activities.

He came to the NPA from the City of San Diego where he had been director of the Water Department for nearly six years.

Mr. Arnold organized San Francisco's Water Purification Division and was its chief engineer from 1931 to 1942.

During the war years he was a senior sanitary engineer with the U. S. Public Health Service. His service was in the utility field in the western area.

Congress balks industry water supply

Congress and the voters of Richmond, Cal., are in extreme disagreement as to the needs for a separate source of industrial water in that city. An amendment to the Interior Department appropriation bill passed by the House recently makes that clear. The amendment provides that no part of the appropriation can be used to carry on work in connection with the Southwest Contra Costa Water District system to deliver industrial water to Richmond, Cal.

Yet in a special election held Feb. 26, district voters endorsed the project by a smashing five to one margin. The election was to obtain voter OK of a contract form between the Bureau of Reclamation—and Interior Department agency—and the district.

The two acts are only early steps in what promises to be a long and significant controversy to determine if this industrial area shall have one all-inclusive water supply or two. Since it involves two public bodies organized under state law and a federal agency, it may well set a precedent for other areas.

Opposing the SWCCWD development is the East Bay Municipal Utility District that includes Richmond and Oakland, Calif., as well as other cities and unincorporated areas. EBMUD serves both domestic and industrial water to the entire area with water coming from the Sierra Nevada via the Mokelumne Aqueduct. Opposition is based on the premise that duplication of facilities is unnecessary and that the long range effect would be higher tax costs.

Richmond experienced the most

(*Continued on page 51*)

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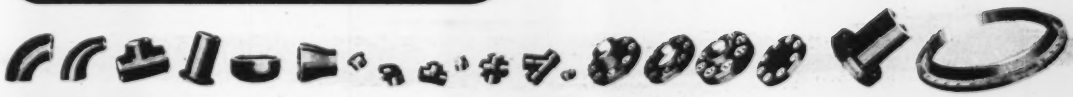

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fantastic wartime growth of any large California city—from 24,000 in 1940 to very nearly 100,000 in 1950. The growth was based on shipyards that closed at the war's end. But, contrary to expectation, the people stayed on and industry flourished. Industrial water consumption declined in late 1945 and early 1946 but then developed to surpass the wartime peak.

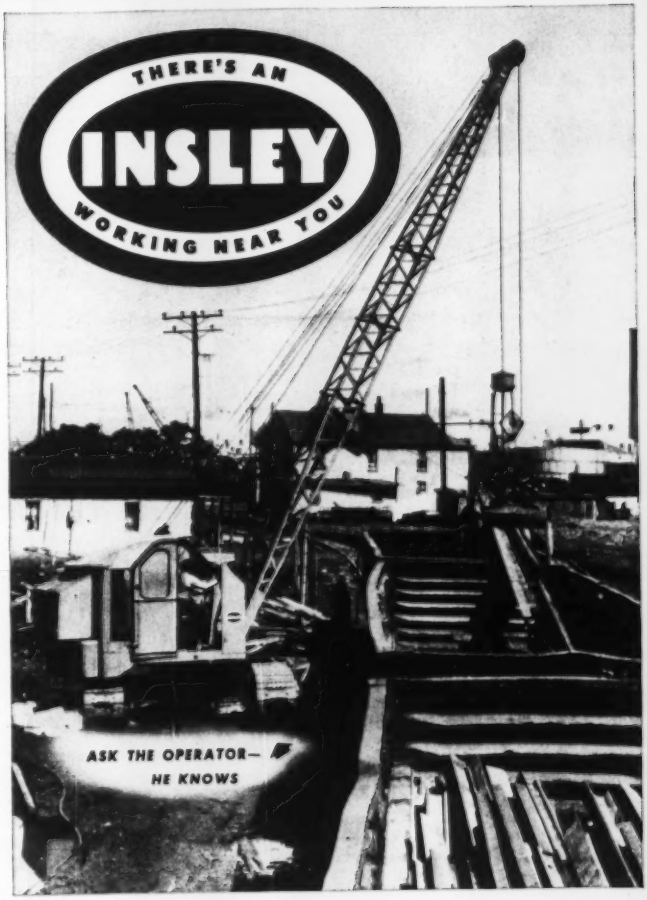
Just after the war, a Richmond group set out to find a source of cheap industrial water. They looked longingly at the Bureau of Reclamation's Contra Costa Canal located only a few miles away. Finding that the USBR could deal only with public bodies, the SWCCWD was established by public vote. With the cooperation of the USBR studies were made and a Contra Costa tie-in was planned. This would be a pipe and tunnel conduit some 15 miles long with initial capacity of 25 mgd costing $12 to $14 million. According to SWCCWD officials, this would result in water rates of 6 to 8¢ per 1,000 gal. as opposed to the EBMUD industrial rate of 12¢ per 1,000 gal. The SWCCWD water would serve untreated water to users of 50,000 gal per day or more. Users would provide such storage as needed to develop pressure and accomodate an interruptible supply.

A second aim of SWCCWD became assuring Richmond industries of a future supply. They said EBMUD has domestic water as their first purpose (all EBMUD water is filtered) and that the area might eventually outgrow the supply potential of the EBMUD system. Since Richmond is only part of a large area served by EBMUD, they feared future shortage.

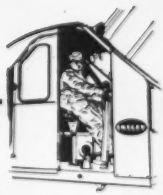
EBMUD officials counter by pointing out that they are aware of the growth potential of the area and are taking adequate steps to meet demand. They now are using about 130 mgd of 220 mgd rights on the Mokelumne River and have filed with state officials for rights to an additional 125 mgd.

Some observers privately say that the entire SWCCWD move is an effort to get lower rates for the Richmond area. But EBMUD officials won't favor one part of their district over any other.

What will happen now is uncertain. The USBR cannot deal with the SWCCWD in view of the appropriation bill amendment. Yet the local people have strongly indicated they want the water. Perhaps, the local people will give up, figuring the EBMUD is too strong. On the other hand they may well find some new angle to pursue.



The INSLEY operator



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HOOKS AND BLOCKS are positioned to close a longitudinal crack in a highway.

SLABS 2½-in. apart at the widest point are drawn together in the closing operation.

Slab slipping method mends highway

The Connecticut State Highway Department has developed a successful plan for restoring concrete pavement slabs that have slipped sidewise and vertically from the original grade.

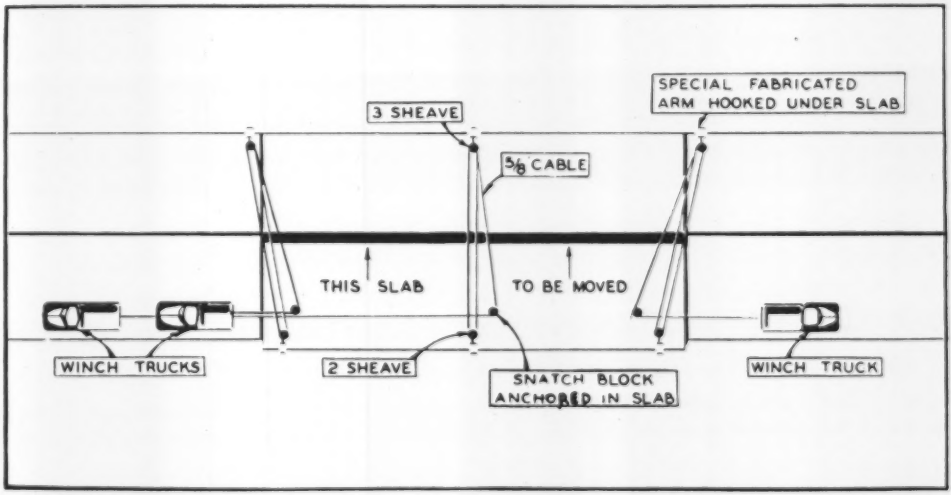
The first step in the procedure is to jack up the pavement slabs to within one inch of the original grade. The next step is to free the slab to be moved, as well as to make sure that the adjoining transverse joints are free. Material that may have been packed in the longitudinal joint during the slab's outward movement must also be removed.

After the slab has been freed on three sides, heavy moving equipment is set in place. (See diagram.) This heavy equipment consists of three 6½-ton winch trucks with ⅝-inch cable, three sets of three and two 12-inch sheave blocks, three sets of 12-inch snatch blocks, three sets of 2½-inch steel pins with welded braces, and three sets of heavy steel hooks.

• **Technique**—One hook is placed at a distance of 18 inches from the end of the slab to be moved and the other hook is placed across the pavement on the adjoining slab approximately 18 inches from the end which creates a slight diagonal pull against two blocks.

The same installation is used at the other end of the slab to be moved. A third set of hooks is placed midway of the slab at which location the pull is straight across the pavement.

One truck is positioned about 100 feet from one end of the slab and the other two trucks at the opposite end of the slab approximately 100 and 150 feet away respectively. The slack is then taken up on all three sets of hooks pulling the cable to a slight strain. When the strain is equal on all three pulling lines, all



THIS HOOK is placed in the pit and caught under the slab to be moved.

HOOKS IN PLACE—The left hook is on the slab to be moved. The snatch block in the foreground is attached to it and runs to the truck.

three trucks then commence pulling together. This causes the slab to move laterally back to its original position.

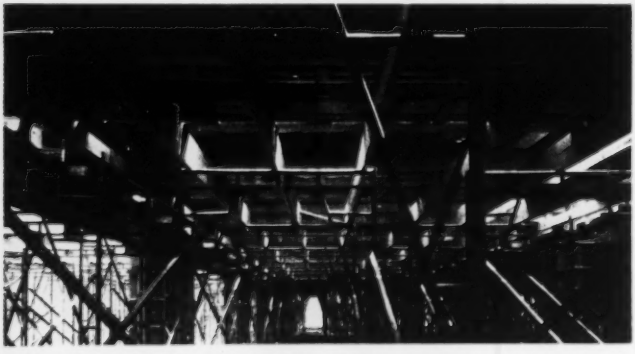
• **Quick operation**—The longest delay to traffic during slab moving on Conn. Route 9 in the town of Haddam was not more than five minutes. These slabs are estimated to weigh 60 tons and in the particular replacement described, there was a 2½-inch wide longitudinal crack between the slabs of each direction lane.

Some experimental work has been undertaken to install ties to keep slabs from separating at the longitudinal joint. Such separation occurs only on pavements which were laid before it was customary to provide longitudinal ties. The experimental bracket was made up to conform to a plan devised by an employee of the State Highway Department.

These brackets were installed on the outside edge of the pavement directly across from each other, 10 feet apart and bolted to the concrete with a bolt embedded in lead wool. The tie material used under the pavement is standard fence cable and fittings which makes the tie bracket the only special equipment required. On the Haddam job, these ties were installed after the replacement of the slabs and department officials feel there will be no further slippage.

The method described here covers work where slippage is away from the center line.

AFTER SLAB HAS BEEN MOVED, brackets are installed on the outside edges of the pavement 10 ft apart and bolted to the concrete with a bolt embedded in lead wool. Tie material used under the slab is standard fence cable. Arrows point to bracket in pit.



SIMPLIFIED SHORING—Sectional steel scaffolding supported formwork for concrete beams and slabs of a Safeway Store in Pasadena, Calif. This saved lumber, decreased manpower requirements and speeded up the job. M. J. Brock and Sons, Inc., was the general contractor and Mathews Construction Co. the subcontractor on concrete work. The Patent Scaffolding Co. supplied the shoring.

ANY SUGGESTIONS?

We would like to hear of interesting new devices and methods devised by our readers to speed up and simplify field work; or of new techniques intended to simplify design computations. We will pay for published items, so send your suggestions to ENR's Field and Office Editor at 330 W. 42nd St., New York 18, N. Y.

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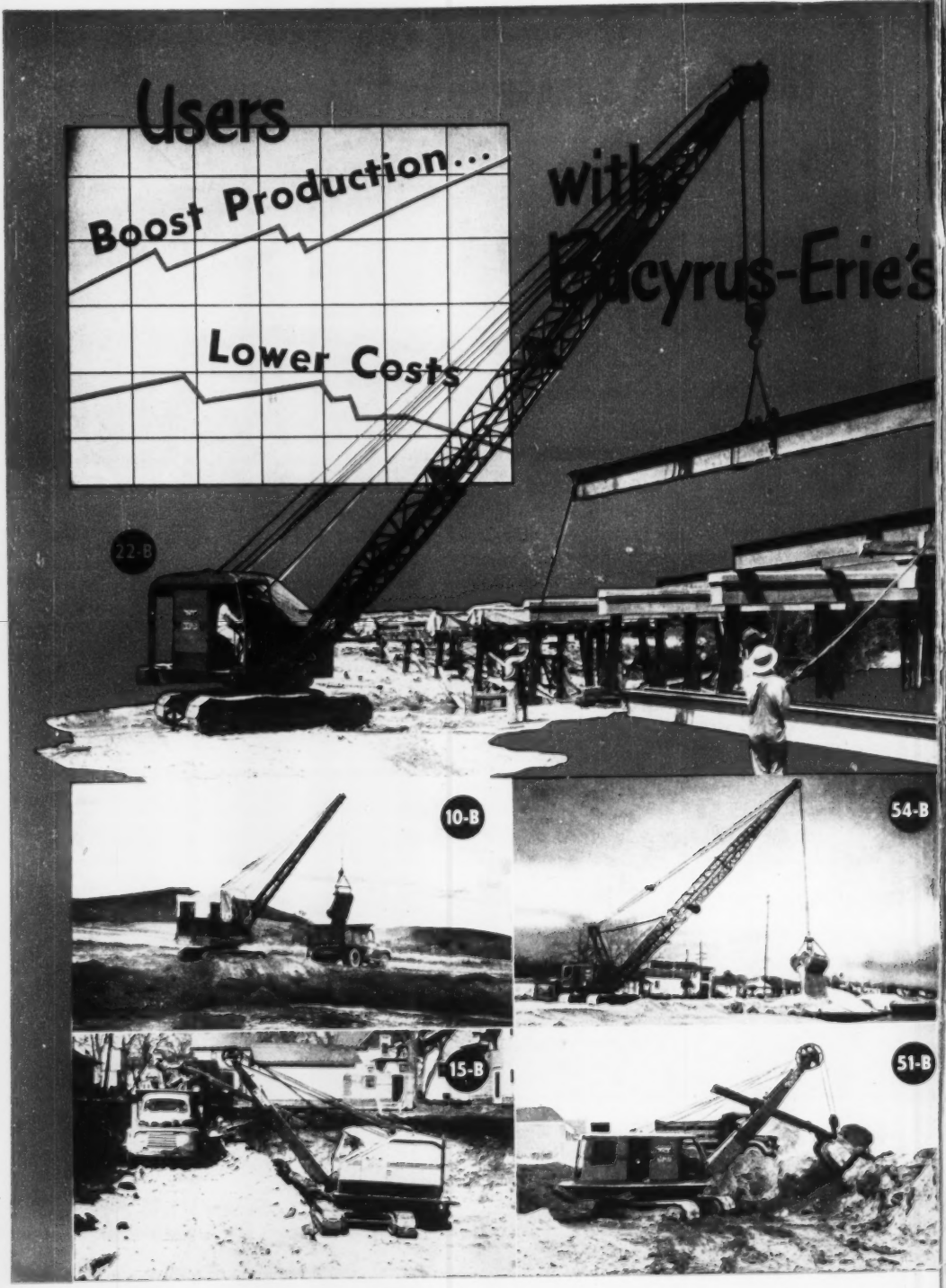
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New York's City Hall, completed in 1811, as it looked 100 years ago

The City of New York has several cast iron water mains in service that were laid more than a century ago. They are part of approximately 5,000 miles of cast iron mains representing about 98% of all the pipe in New York's distribution system. The contrast in traffic and construction, above and underground, today and 100 years ago, is fantastic. Yet the shock-strength, crushing-strength and beam-strength of cast iron mains have enabled them to withstand the unforeseen stresses imposed by vast changes. Because of these strength factors and effective resistance to corrosion, cast iron water and gas mains laid over 100 years ago, are still serving in the streets of 38 cities in the United States and Canada.

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ALL READY TO SINK—Winch lines from shore, together with pile-bent guides, maintain the caisson's position during the sinking.

Intake caisson lowered into Thames

(McGraw-Hill World News)

Another stage towards the completion of the Vacuum Oil Co.'s new refinery at Coryton, Essex, was achieved on March 6 when a caisson of reinforced concrete, forming the main section of the water-intake jetty was sunk in the Thames River alongside the refinery.

This structure, weighing 4,200 tons, will house the pumping machinery for the cooling water for the power station and the process plant. It was constructed by John Laing and Son, Ltd., civil engineering contractors, London, for the Lummus Co. of London and New York, chief contractors for the Coryton refinery.

Construction of the caisson was begun in a dry dock at Gravesend. When partly erected it was towed to Tilbury where it was completed. Finally, it was towed eight miles down the Thames to Coryton where it was sunk into its final position on a previously prepared bed in the river. It has an overall length of 100 ft and a width of 53 ft. It is divided into six main compartments. The external walls are 1 ft 6 in. thick and there are three longitudinal walls 9 in. thick, and nine transverse walls of the same thickness below the bottom floor slab which is 20 ft above the base.

The total height of the unit when it left Tilbury was 52 ft 6 in. The final two lifts with the deck were added after the caisson reached Coryton.

• **Details of construction**—Forms for the concrete walls were made of light prefabricated timber units, each being 2 ft deep and varying in width from 2 ft to 6 ft according to its position in the structure. The predetermined water-cement ratio in the concrete was carefully maintained and an average cube compressive strength of 6,000 psi at 28 days achieved. The concrete was vibrated internally. Tubes for grouting under the caisson were set in position in the structure to fill in any irregularities in the prepared bed.

An opening on one side of the caisson was left and temporarily closed by steel sheet piling, which was removed at Coryton to allow space for trash racks. Since the caisson during construction at Tilbury was a floating structure, it was not possible during that period to use instruments for setting out, and reliance was, therefore, placed on measurement alone from base lines in the structure itself.

A steel structure on box piles was provided, designed to carry a number of large pipes, including three of 42-in and three of 39-in diameter, from the concrete intake to the shore. A reinforced concrete roadway, carried on steelwork and box piles, will give access to the shore from the eastern end of the unit and enclose it on three sides. This structure, together with

(Continued on next page)

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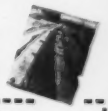

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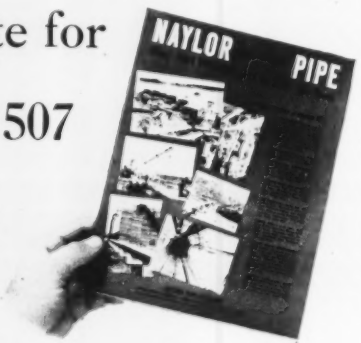

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a structural steelwork and piled extension at the western end, will also serve to protect the unit and pipe bridge from damage by drifting craft.

American firms active in the Antipodes

The Vacuum Oil Co. will expand its present oil refining facilities at Altona, Victoria, Australia, expending $30 million to increase the refinery's capacity to more than ten times that at present.

The extensions are planned to come into operation at the end of 1954 and would make possible a production of more than 250 million gal. of motor fuel, jet fuel, kerosene, oils and bitumen annually.

Initial work is expected to start at once under the supervision of four American refinery construction experts who have already arrived in Melbourne.

• **In New Zealand too**—Several large American contractors are ready to undertake the completion of the Roxburgh and Waitaki hydraulic projects in New Zealand. Some of the firms have already sent engineers to do initial estimating, and others are said to be prepared to do so as soon as bids are called for by the authorities.

Road building deadline extended in Philippines

The deadline date for completion of the Philippine rehabilitation program of highways and bridges financed by the U.S. Government has been extended to June 30 next, and unless the money, totaling $2,450,000, is allocated by that time it will revert to the U.S. Treasury.

The extension will enable the Philippine government, with the cooperation of the U.S. Bureau of Public Roads, to liquidate the balance of its construction contracts during the fiscal year 1952. Congress has appropriated an additional $3 million for rehabilitation, making a total of $5,450,000 for 1952.

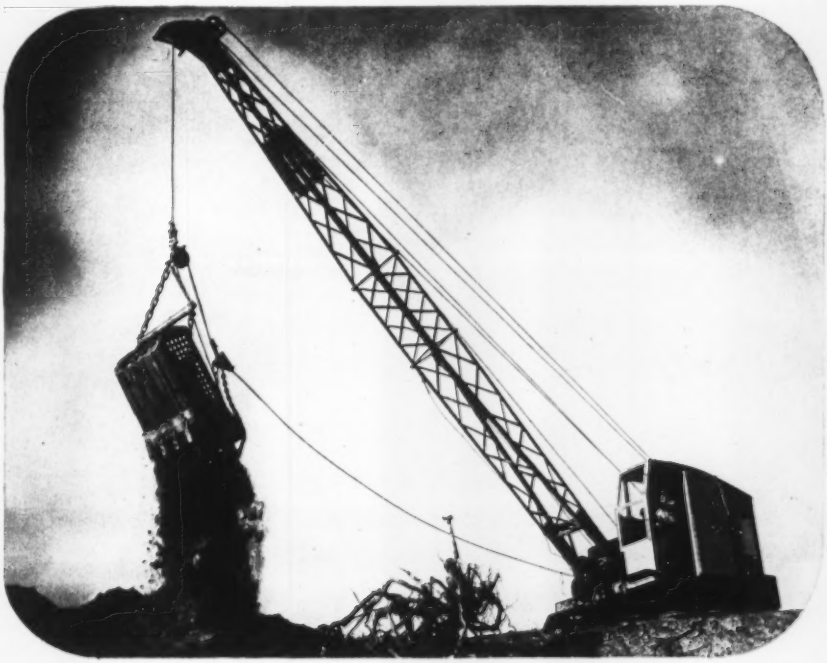
Mexico's highway budget is unusually high

The 1952 federal highway budget of Mexico totals about $50 million. This is greater than the combined appropriation for the army, navy and air force.

Roads in Mexico are being extended rapidly and improved to earn tourist dollars and to stimulate economic development. The program

(Continued on page 63)

WIRE ROPE



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Rural Egypt to get pure drinking water

An attempt to provide safe drinking water under pressure for all rural areas in Egypt has been started in the Fayoum province by the Egyptian ministry of urban and rural affairs. Work has been completed in the southern part of the province southwest of Cairo, and pipes are now being laid for the northern section.

The work entails long-distance pumping of Nile water which has been treated by sedimentation, filtration, and chlorination. According to T. O. Buxell, environmental sanitation adviser at the Alexandria regional office of the World Health Organization, this effort is already proving highly successful. Mr. Buxell has just completed a survey of Egyptian health projects, including the Sindebis demonstration area in the Giza province where the Egyptian government and the Rockefeller Foundation are applying modern health techniques.

South Saskatchewan Dam may win federal approval

During the current session of the Canadian parliament, it is expected that a three-man royal commission which has been studying the proposed $110-million South Saskatchewan River dam project will make its report.

Proponents claim that if the project wins federal approval and is carried out it will transform the "dust bowl" of central Saskatchewan into a fertile 1,000-sq mi region of vast cattle ranches and fields of balanced crops.

Premier T. C. Douglas of the Province of Saskatchewan says, "For our province, this great river project has a significance equal to that of the St. Lawrence seaway for Ontario and Quebec; the $500-million Kitiwat aluminum plant to British Columbia; or the $25-million Strait of Canso Causeway for the Maritime provinces."

• **Bidders wanted**—The Republic of El Salvador is about to build a coastal highway of about 62 miles and pave 56 miles of other highway. It desires U. S. contractors to bid on this work. Details may be obtained from The Department of Public Works, Avenida Isidro Menendez No. 27, San Salvador, El Salvador, Central America.

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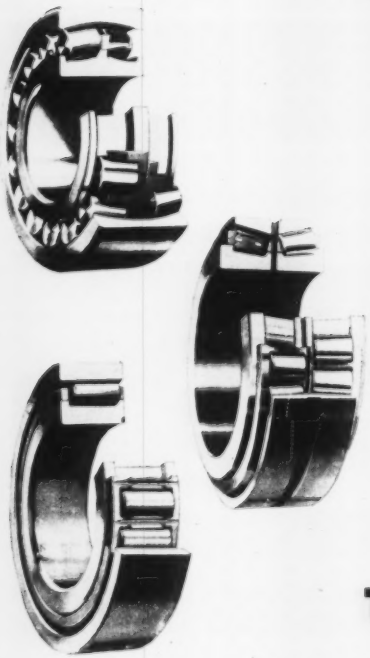

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MEETINGS

CALENDAR

American Water Works Association, N. Y. section, Hotel Syracuse, Syracuse, N. Y., April 16-18.

Symposium on "Airfield Pavements for Jet Aircraft," U. S. Naval C. E. Research and Evaluation Laboratory, Port Hueneme, Calif., April 17-18.

California section, American Water Works Association, spring meeting, The Ahwahnee, Yosemite National Park, Calif., April 18.

Concrete Reinforcing Steel Institute, The Greenbrier, White Sulphur Springs, W. Va., April 28-May 3.

American Water Works Association, Municipal Auditorium, Kansas City, Mo., May 4-9.

Highway Transportation Congress, National Highway Users Conference, Mayflower Hotel, Washington, D. C., May 6-8.

Missouri Basin Inter-Agency committee, Pierre, S. D., May 7-8.

Industrial Wastes Conference, Purdue Memorial Union, Lafayette, Ind., May 7-9.

First World Conference, International Road Federation, Washington, D. C., May 8.

Society for Experimental Stress Analysis, Hotel Lincoln, Indianapolis, Ind., May 14-16.

U. S. Conference of Mayors, Waldorf-Astoria Hotel, New York City, May 15-17.

Rail Steel Bar Association, General Brock Hotel, Niagara Falls, Ont., May 19-20.

National Public Health Engineering Conference, annual meeting, University of Florida, Gainesville, May 20-21.

Western Association of State Highway Officials, Olympic Hotel, Seattle, Wash., June 5-7.

Hydraulics Conference, State University of Iowa, Iowa City, Iowa, June 9-11.

International Organization for Standardization, tri-ennial meeting, Columbia University, N. Y. City, June 9-11.

Association of State Planning and Development Agencies, annual meeting, Nicollet Hotel, Minneapolis, Minn., June 15-19.

Conference on Soil Stabilization, M.I.T., Cambridge, Mass., June 18-20.

American Society for Engineering Education, Dartmouth College, Hanover, N. H., June 22-27.

National Businessmen's Conference on Urban Problems, Portland, Ore., June 23-24.

Forest Products Research Society, annual meeting, Milwaukee, Wis., June 23-25.

American Society for Testing Materials, 50th anniversary meting, Hotel Statler, N. Y. City, June 23-27.

American Institute of Architects, Waldorf-Astoria Hotel, N. Y. City, June 24-27.

Symposium on Earthquake and Blast Effects on Structures, University of California, Los Angeles, Calif., June 26-28.

BEE-CEE BUILDERS use TOURNACRANE to move giant panels

When Bee-Cee Builders, Skokie, Ill. contracted to build a new 60′ x 60′ factory at Addison for the Savogran Co. of Illinois, they chose the 7-ton D Tournacrane because of its unusual adaptability to their building method, "Tilt-up Construction."

This job involved lifting and setting twelve 6" thick precast concrete wall panels into vertical position on edge of concrete foundation. Bee-Cee eliminates high hand-labor costs of laying walls with concrete blocks — pours whole wall panels at one time, on-the-spot, in individual molds.

Using Tournacrane exclusively for all lifting, spotting and placing, they found it superior to other types of cranes previously used. As Leonard Borisof, Bee-Cee partner puts it, "I started saving money and time when I got Tournacrane on the job."

Handles lifts on any footing

With one-man Tournacrane, electric pushbutton control of all steering and lifting gives operator freedom to safely suspend, move and spot giant panels, while working on or off floor. Big low-pressure tires do not damage forms, lumber, or concrete. Load is *fully visible at all times.*

Ability to travel over highway at 28 m.p.h. and handle lifts or carry on any kind of footing . . . pavement, blacktop, gravel, cinders, dirt, and mud or soft fill—further demonstrate Tournacrane's capacity to make money on your lifting jobs, too!

Money-saving interchangeability

The handy 7-ton "D" as well as larger 15-ton capacity "C", or 30-ton "A", offer you additional earning capacity because prime mover is interchangeable with scrapers, rear-dump and bottom-dump or flat-bed haulers to keep your investment dollar at work all year 'round. Ask your LeTourneau Distributor or write direct to us for all the details on these versatile "*work anywhere*" cranes.

R. G. LeTOURNEAU, INC.
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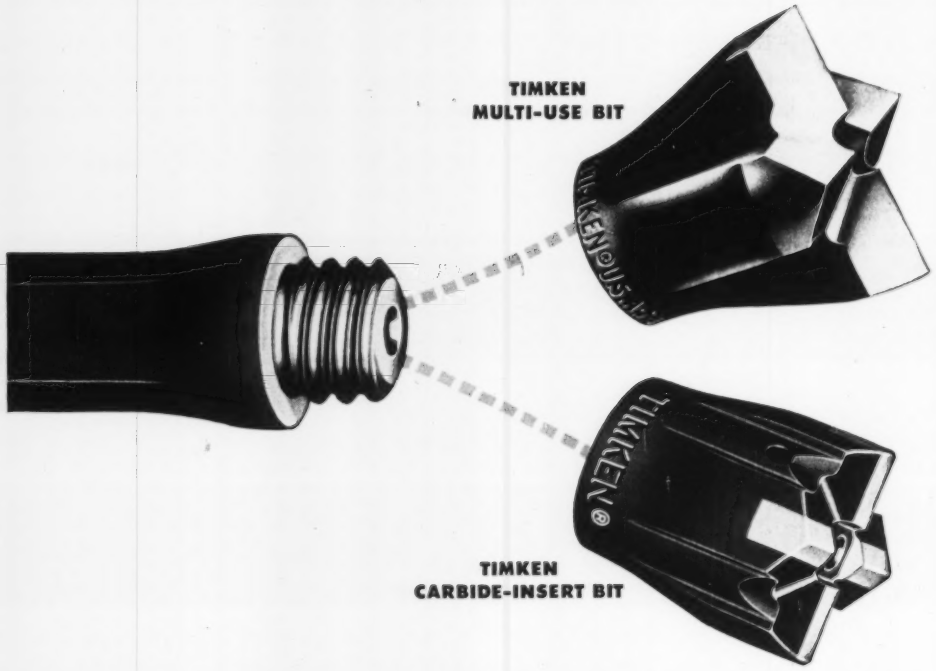
SWITCH TO THE BEST BIT FOR THE JOB, RIGHT ON THE JOB



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Timken carbide insert bits and multi-use bits are interchangeable in each thread series. And remember that both types of Timken bits have these three important advantages: 1) made from electric furnace Timken fine alloy steel, 2) threads are not subject to drilling impact because of the special shoulder union developed by the Timken Company, 3) quickly and easily removable.

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FLOOD CONTROL performance on 1:30 model at Vicksburg checked . . .

STILLING BASIN and concrete channels being built in North Adams, Mass.

Hydraulic speedway passes model test

FUTURE FLOODS will be channeled through North Adams, Mass., at a 40-ft-per-second clip in a reinforced concrete flume with slopes as steep as 50 ft per mile and superelevations on curves ranging to 12.5 ft. Hydraulic design of the control works is based on model studies done at the Waterways Experiment Station in Vicksburg, Miss.

Improved channels will accommodate peak discharges (24,300 cfs on the main stream below junction of North and South branches) with 3-ft freeboard.

The record flow on the North Branch flooded 490 acres of North Adams in 1927; greatest flow of record on the South Branch and main stream occurred in 1938, flooding 510 acres. Construction under way now is to protect the city throughout against these greatest floods on record, and to protect against a flow 50% greater than the record on the North Branch and on the main stream below junction of the branches.

Present plans of the New York District, Corps of Engineers, call for channel improvement along 9,100 ft of the North Branch, 8,100 ft of the South Branch, and 12,100 ft of the Main stream. Improvements will include closure levees and earth channels with levees as well as the more spectacular concrete channnel through the main portion of the city.

The existing stream flows through confined, boulder-strewn channels bordered by irregularly placed retaining walls. The improvement confines stream flows in a channel between flood walls and on a concrete floor in order to accommodate flood flows and increased velocities. Existing buildings prevent realignment of the channel and make necessary the short radius curves with the high superelevations and spiral transitions.

A concrete stilling basin now nearing completion as the first unit of the project will dissipate flow energy at the downstream end of the paved length of channel. Designed to cut the maximum velocity from 40 to 10 fps, the effect of the stilling basin will prevent erosion of the unimproved channnel downstream.

(Much of this type of design had been used by the Los Angeles District, Corps of Engineers, in constructing high velocity channels through Los Angeles, Calif.)

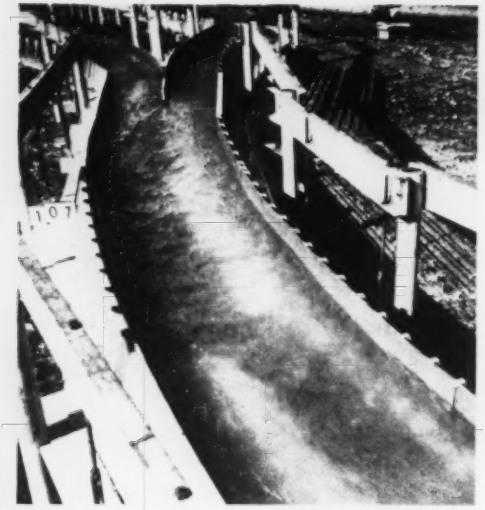
• Models prove the hydraulics—To verify hydraulic design of the North Adams works, the Corps' Vicksburg experiment station was asked to do a model study. It should check flow conditions at the confluence of the two branches and in the stilling basin; and it should advise on changes in bottom grade, channel width or floodwall height that might improve hydraulic efficiency or cut construction costs.

A model of 1:30 scale was built to reproduce 600 ft of the North Branch, 900 ft of the South Branch and 1,600 ft of the main channel downstream from the branch junction to (and including) the stilling basin.

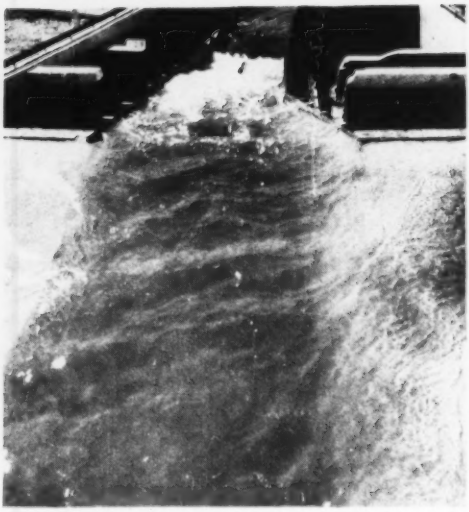
Paved portions of channel reproduced in the model were constructed of plastic-coated plywood mounted on hanging supports so that the slope of the channel could be changed as desired. The stilling basin also was plywood, permitting ready alteration. The area downstream from the stilling basin was molded in sand for study of channel erosion. Sand was capped with a thin layer of concrete for velocity and current direction studies.

Initial tests indicated that the model water-surface profiles agreed very closely with those computed (using a roughness coefficient of $n = .014$ as determined by Kutter) for the corresponding prototype flows. These tests were made for various combinations of flow from the North and South branches and covered the entire range of discharges expected in the prototype. Data recorded included flow observations and photographs, as well as measurement of depth and velocity at selected cross sections throughout the channels.

• Differ from design—Although the prototype channel had been designed



JUNCTION PROBLEM of unequal energy distribution was solved on model by wall realignment.



DIVIDED STILLING BASIN was model-test solution to energy distribution problem there.

in accordance with established practices, flow conditions were not entirely satisfactory. A series of transverse waves formed at the junction of the branches, and asymmetrical flow conditions existed as flow entered the stilling basin.

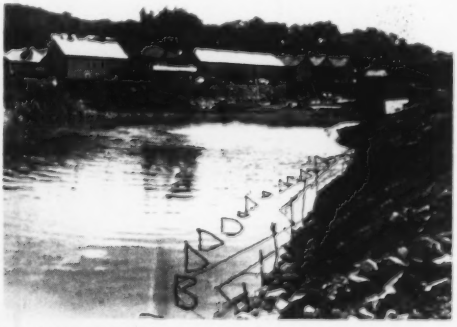
Flow entering the main channel from the North Branch moved faster than that from the South Branch, causing an unequal distribution of energy in the main channel at the junction. This unequal distribution continued downstream and was aggravated by the curve immediately upstream from the stilling basin. Highest velocities prevailed along the right side of the channel. As flow entered the stilling basin, the high velocity jet along the right side continued unchecked through most of the basin while a submerged roller was formed on the left side of the basin and extended upstream along the inside of the curve.

Modifications studied in an effort to correct those conditions involved variation in channel widths upstream from the stilling basin, extension of the superelevation varying distances upstream from the stilling basin, use of warped bottom and wall surfaces, and relocation of the stilling basin. Tests indicated that the greatest improvement was achieved by moving the stilling basin downstream several hundred feet.

Efforts toward a more economical solution of the problem were continued with hopes of avoiding the excessive cost of extending the paved channel downstream. But no amount of warping of the bottom or side walls would effect the desired distribution of energy as flow entered the stilling basin.

After extensive tests, a design was developed including (1) reduction in channel width immediately upstream from the stilling basin and (2) use of a separating wall in the stilling basin. The reduction in channel width resulted in more even distribution of flow, and the separating wall created, in effect, two separate stilling basins. The basin invert elevation in each case was controlled by the energy entering that particular basin. As developed through model study the two separate basins have different depths, wall flare, and end sills. Since more energy enters the basin on the right side, the invert there is lower. This type basin is now being completed at North

FLOOD DURING CONSTRUCTION bulged out sheetpile diversion structure, undermined it, then overtopped it.



SWAMPED STILLING-BASIN SITE took six weeks to be put back in order. Normally, wellpoints kept it dry. (ENR photos)

Adams and should satisfactorily minimize erosion tendencies in the unimproved channel downstream. The basin, thus altered, did not have to be moved.

Desired improvement in flow conditions at the junction of the two branches was accomplished by realignment of the outer confining walls. The original length and shape of the dividing wall was retained. Model studies will form the basis for future improvements to the channel upstream, subject to the availability of funds for that purpose.

Model investigation was conducted by the Hydraulic Division of the Waterways Experiment Station of which Col. H. J. Skidmore is director. Thomas J. Buntin, chief of the structures section, hydraulics division, supplied the above description of model work.

• **Construction progress**—At the jobsite, Petricca Construction Co. of Pittsfield, Mass., is completing the stilling basin with Kenneth Chase as project manager.

The basin is 140 ft long and fans out from 80 ft to a maximum width of 120 ft. The reinforced concrete wall dividing the basin into two portions is 2 ft 6 in. thick. The basin's bottom slab slopes down for a drop of some 17 ft, in the left portion levels off, then steps back up in three 2-ft steps, each measuring 25 ft in the direction of flow. The bottom slab in the rigid portion, drops some 22 ft with the last of its three steps being 3 ft high. The slabs are 7 ft thick at their thickest and have 4-in. weepholes cast in them on 10-ft centers each way, sloped 45 from vertical in the direction of the flow. Outside walls of the basin are 1 ft 3 in. thick at the top and are 31 ft 6 in. and 36 ft 6 in. high at the deepest points in left and right portions of the basin.

Below the stilling basin the widened bed of the river is to be paved with a 7-ft deep layer of derrick stone on a 1 on 10 slope for a distance of about 200 ft. From there on downstream, other types of channel improvements are expected to help the banks contain the river, in time of flood.

Above the stilling basin some 400 ft of the mainstream channel is being transformed into a concrete channel in a two-stage construction operation. Flow was diverted to the left side of a line of sheet piling while the right half of the concrete channel was built. Then a timber wall 5 ft high was erected on the bottom slab paralleling the completed concrete wall and the river was switched over to flow between these two. The left half of the concrete work was then finished.

Stream flow was diverted fully around (to the left of) the stilling basin during its construction. And except for a disastrous flash flood last July the sheet pile diversion dam and a 3-stage wellpoint system augmented by 8-in. and 10-in. centrifugal pumps kept the hole dry during construction.

• **Flood trouble**—The unprecedented local flash flood of July, 1951, caused a sudden rise of unanticipated height of water in the diversion channel. The resultant pressure caused a slight bulging in the portion of the sheet piling above the ground as the slack in the sheeting was taken up. This was apparently accompanied by a slight movement of the lower portion of the sheeting, which was followed by the blowout, and the stilling basin and adjacent downstream working area were inundated. As a result, the contractor lost over six weeks time during the middle of the construction season before repairs were completed, and normal work resumed. The overall effect of this flash flood was to delay operations to such an extent that work had to be carried over to the current year.

This year, contracts are due to be let on an additional 900 ft of floodwall construction in North Adams, and the entire project is at least tentatively scheduled to be completed in 1956. This depends upon budgeting of construction money and materials.

Col. A. H. Davidson, Jr. is District Engineer.

A sequel: Philadelphia builds a flood chute

PHILADELPHIA'S current flood control work on Frankford Creek features a 2,500-ft length of paved chute, 60 ft wide between 9-ft high T-section side walls (see also North Adams story beginning p. 67. Down this chute will flow the 100-cfs normal flow and the 6,500-cfs peak flood flows of the erratic creek that drops 400 ft to the Delaware River, draining a 37-sq mi watershed, mostly within northeastern Philadelphia.

Completed construction at the upstream end of this 3½-mile flood control project was undertaken along with a needed street connection across it. A missing link of Castor Ave. was needed to solve a traffic problem, so while a bridge was being built, the first channel relocation and improvement was done.

• **Cutoff constructed**—Channel improvement begins at Juniata Park, just above Castor Ave. At that point a hairpin bend in the creek has been eliminated by relocation of the channel, and 104-ft long concrete weir 11 ft high has been built as an erosion prevention device. The weir—founded on rock—will double as foundation for concrete piers carrying a footbridge over the streambed. Through the weir is cast a 3 x 4-ft sluice to carry normal stream flow.

Below the weir is a concrete stilling basin with reinforced L-section walls. Stone drains with 5-in. collector pipes and 4-in. weep holes prevent hydrostatic pressure build-up beneath the stilling basin slab.

Gravity-section walls standing 5 ft high above bed of creek and retaining grassed slopes line the channel from stilling basin to Castor Avenue Bridge, a 60-ft span rigid frame structure with 61-ft 6-in. roadway-plus-sidewalk width.

Work now under construction below Castor Avenue Bridge includes: the 2,500 lf of paved chute mentioned above; rebuilding a bridge over the creek at Wingohocking St.; 580 lf of three-cell conduit around a sharp curve; 1,470 lf of unpaved channel with low gravity-section concrete walls that are topped by riprapped slopes.

Channel width increases from 60 to 80 ft in its unpaved length, then gets eventually to 100 ft wide through a length reaching to the Pennsylvania Railroad Bridge.

All reinforced concrete walls and channel paving are of 3,500 psi concrete, and in addition the invert paving, where used, has been vacuum processed.

• **Construction flooded out**—A severe swamping was suffered in early stages of the job—just as at North Adams (preceding story). The contractor's diversion of flow to the left of a sandbag dike during right-bank construction below Castor Ave. was inadequate in a summer flash flood. Water came up so fast that a crane working on the job couldn't be gotten out of its way in time to avoid a dousing.

After the washout, a steel and timber bulkhead was built for diversion. The contractor drove 10-in. H-beams on 10-ft centers with their flanges parallel to stream flow. The wedged

PAVED CHANNEL project in Philadelphia bears resemblance to North Adams job—even to flood during construction. (right).

5 x 10-in. timbers between flanges of consecutive H-beams, then caulked all joints. This diversion structure worked well.

When the right half of paved channel had been poured, a bulkhead of 5 x 10 timbers bolted to triangular angle-iron frames was erected, anchored to the channel pavement. The stream was diverted between this bulkhead and the completed right floodwall while left-bank work proceeded. The same plan was used at the three-cell conduit, while at the unpaved stretch below the conduit, a large earth dike down the center of the creek successfully shifted its flow.

Plans are now in preparation for the last stretch of channel improvement. A 5,500-ft cutoff is in prospect to cut remaining length to the Delaware by some 4,000 ft.

Knappen-Tippetts-Abbett-McCarthy of New York, as consultants to Philadelphia's Water Department, are designing and supervising construction of the channel improvements. The bridge at Castor Ave. was designed by city engineering forces. G. C. Munoz, assistant division engineer, construction, in the Water Department, supplied the information on which this story is based.

Construction of flood control works is being done by Progressive Builders, Inc., of Pennsauken, N. J. The first section, including Castor Avenue Bridge was contracted to Kaufman Construction Co., Philadelphia. Cost of work let to contract so far has been $2,575,000; the whole project is estimated at $5 million.

Rainmakers competing for work sign performance contracts

Stiff competition among rainmakers in the Rocky Mountain and western Great Plains area is resulting in more favorable contract terms to water users buying the service.

In Weston County, Wyo., ranchers have agreed to a "performance type" contract with Water Resources Development Corp., Denver. Under the pact, the Denver firm will get a $2,848 retainer fee from the ranchers. Above that, the rainmaking organization will be paid in proportion to the amount of rain above the all-time high median fall recorded at five weather observing stations in the county.

The retainer fee compares with an $8,852 flat fee paid by the Weston county group for cloud seeding during 1951.

The new contract started April 1, and will be in effect for 6 months. Monthly maximum bonuses were figured by the farmers and ranchers, who agreed to collect enough money to cover both the retainer and maximum fees. The money will be banked and paid out to the Denver firm monthly, with the amount based on the rainfall.

• **"Dust bowl" areas**—Meanwhile, in Guyman, Okla., once the center of the "dust bowl", North American Weather Consultants, Inc., Pasadena, Calif., is bidding for contracts against Water Resources Development Corp., which provided rainmaking service for about 8 million acres in the area during 1951. The California company, which is also competing with the Denver firm for Wyoming rainmaking contracts, reportedly has offered the Guyman area ranchers a lower price than WRDC collected last year.

NAWC has also moved into northwestern Kansas, where it signed a $50,000 contract with the High Plains Water Resources Development Association. The association said the California firm would place almost all of its silver iodide generators within the target area, instead of upwind of the area.

• **The record**—While the effectiveness of rainmaking continues in hot dispute, there is no controversy about record snowfalls this winter in some of the areas where rainmakers are active.

Metropolitan Denver appears assured of the biggest water supply in its history during 1952. A check of snowfall on the mountain watersheds serving the city showed both snow depth and water content standing at all-time highs, although for the city itself the winter has been one of the dryest in years.

Near record snowfalls have also been recorded in southwestern Colorado, and the best state water runoff in ten years is predicted for much of Arizona this spring.

FACTS YOU SHOULD KNOW ABOUT

daylighting your buildings

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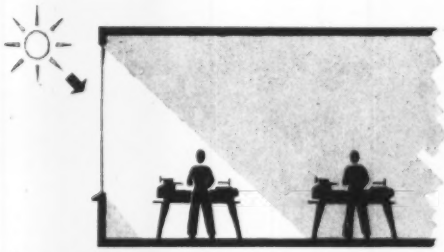
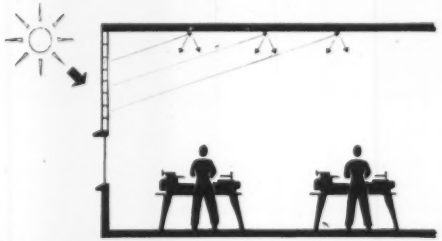
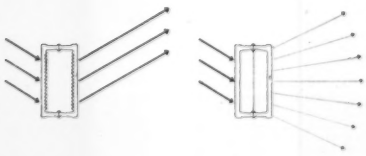


QUESTION . . . How can we achieve the control of daylight over wider working areas in our offices and shops?



ANSWER . . . PC Functional Glass Blocks are especially designed to direct or diffuse natural daylight, so that it may be properly controlled for maximum illumination, with comfort. This diagram shows how a room is "daylighted" with PC light-directing glass blocks.



TWO TYPES of PC Functional Glass Blocks are available—light-directing and light-diffusing.

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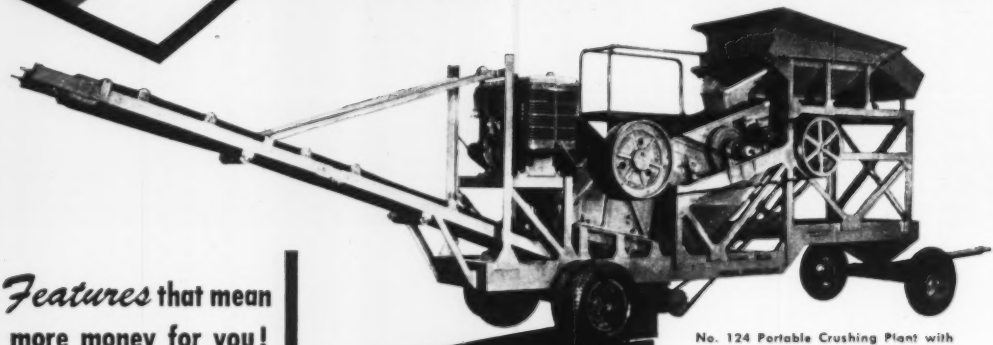

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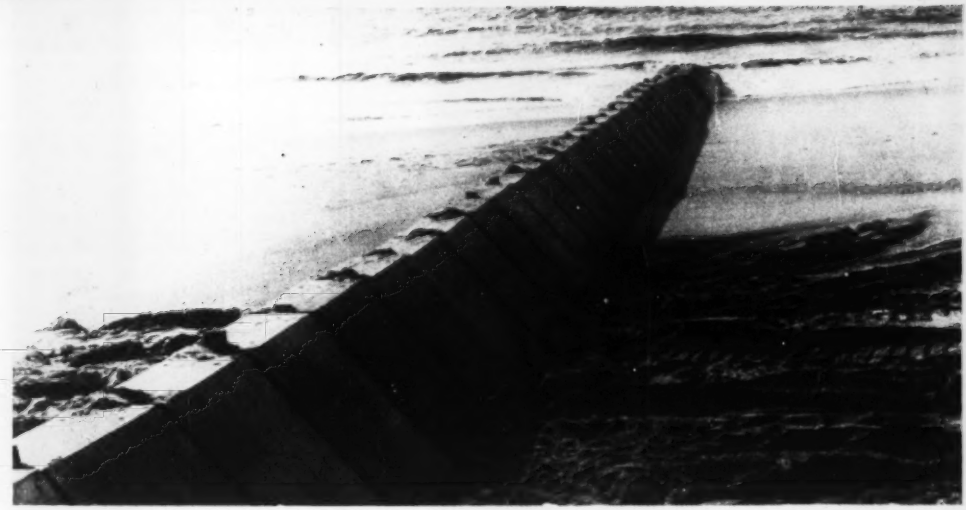


GROINS 195 ft long built of 11-ton concrete blocks prevent beach erosion at Ocean Beach, L. I.

Concrete blocks form low-cost groins

Harrison Weber
Canals and Waterways Engineer
Suffolk County Highway Department
Port Jefferson, N. Y.

GROINS for protecting beaches against erosion have been built of concrete blocks weighing 11 tons apiece at three different points on the Long Island, shoreline in New York. Not only was construction speedy but the groins cost less than if they had been made of any other material.

A second choice for groin material would have been stone, which has been used at a number of sites on the north shore of Long Island. Stone, however, has to be trucked long distances from the banks of the Hudson River.

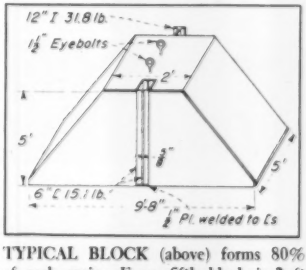
Designed to trap sand and stabilize the shoreline, two installations of concrete-block groins were made on Long Island Sound near Riverhead—one in 1948, the second in 1950. The latest project, at Ocean Beach on the Atlantic, was completed last February.

The first two installations have definitely helped stabilize the beaches they were designed to protect. The new one will be kept under close observation until its long-time effect has been determined, but an improvement in width and elevation of the beach has already been noted.

• Simple, flexible joints—Four groins, each 195 ft long, were built at this beach. Spaced 525 ft apart, they extend from the dunes to a point 30 ft beyond the low-water line.

Each is composed of 40 precast concrete blocks, which are connected together with patented steel joints that permit fitting the blocks to the ground slope. Two types of 11-ton block, called A and B, were used. Every fifth block is a B. Shorter than the A blocks, the B units are wider at all points, the purpose of the change in section being to present an uneven surface to the water, to absorb some of the wave energy through friction at the offsets.

The blocks are trapezoidal in section. Five feet in height and length, A blocks are 2 ft wide on top and 9 ft 8 in. wide on bottom. B blocks are 15 in. shorter and 2 ft wider at all points than the A blocks.



TYPICAL BLOCK (above) forms 80% of each groin. Every fifth block is 2 ft wider, to brake wave power.

For making a joint, one flange and 7 in. of the web of a vertical 12-in. steel I-beam were encased in one end of a block, and a rectangular key with a narrow entrance was formed at the opposite end. In assembling the blocks at the site, the flange of the I-beam in one block was slipped into the key of an adjoining block.

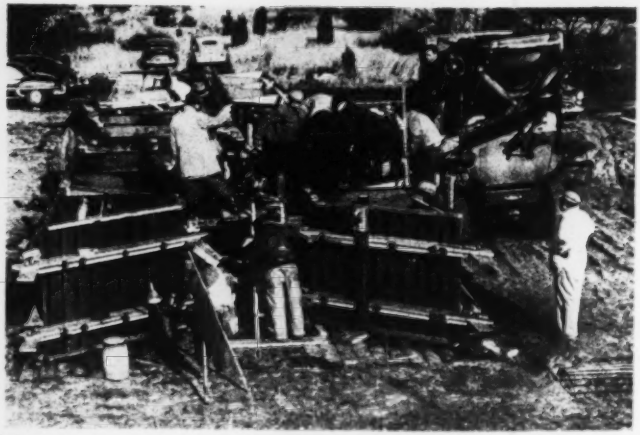
The sides of the key are formed by two vertical 6-in. channels with flange edges ⅝ in. apart to admit the beam web. The inner space between the flanges was plugged with a ⅝-in. square bar. To brace the channels, a ½-in. thick plate was welded across the bottoms.

Reinforcing includes two 1¼-in. square bars bent into a U-shape and welded to the beam and channels—one near the top of these members and one near the bottom. The beam was also anchored to the concrete with four hooked 1-in. square bars. Experience with the first two installations indicated the necessity for this reinforcing steel.

Two steel eyebolts were embedded in the top of each block for lifting and transporting it.

• Production-line casting—The beam, key channels and bracing for each block were welded together in a fabricating shop and shipped to the contractor's casting yard at West Sayville ready for insertion in the forms.

Four sets of forms were assembled,



STEEL FORMS were set up in production lines to form concrete blocks.

BLOCKS were loaded on a war-surplus landing barge for shipment.

TWO-WHEEL CRANE powered by a tractor set the blocks in place. Joints were made by fitting an I-beam lug on one block into a key on the next.

in each of which six blocks could be made at one time.

The blocks were cast on end, I-beam up, with wood separators between the units in each production line. Forms for the tops and bottoms of the blocks, which were cast in a vertical plane, were conventional channel-shape sectional steel wall forms.

The concrete was ready-mix, trucked from a batch plant 14 miles away. It consisted of one part air-entraining cement to two parts sand and 3½ parts gravel, with 4½ gal of water per bag of cement. Air content ranged from 5 to 5½%. Each block contained 5½ cu yd of concrete.

In cold weather, aggregates and water were heated, and after the concrete was cast, the blocks, enclosed with canvas, were kept at 60 F with oil stoves.

The contractor stripped the forms at the end of three days. After waiting 12 days, he removed the blocks from the casting platform. With this cycle, he maintained a production schedule of six blocks per day.

• **Groins built fast**—From the casting yard, the blocks had to be transported 8 miles across Great South Bay to an available dock and 1½ miles along the beach to the site. The contractor shipped the blocks across the bay two at a time on a war-surplus 50-ft landing barge. Four trips could be made in an 8-hr day.

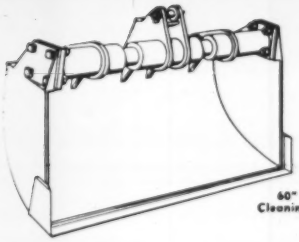
A 20-ton, two-wheel crane, propelled and powered by a crawler tractor, unloaded the blocks, transported them one at a time to the site and assembled them into groins. With this equipment, the blocks were accurately spotted and set in position as much as 50 ft out in the ocean as easily as on shore.

At low tide, the block farthest off shore in a groin was set first, key end inshore. Then, successive blocks were set in place, the I-beam in each fitted into the key of the previous one.

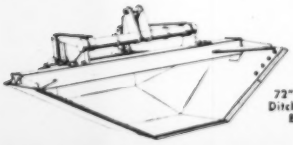
The first two groins were built in 7 hours, the last two in 5½ hours. Each groin cost $18,600.

The work was initiated by the local government, while the New York State Department of Public Works made the survey, drew the plans and supervised construction. The state paid 50% of the cost, the county 25% and the Village of Ocean Beach 25%.

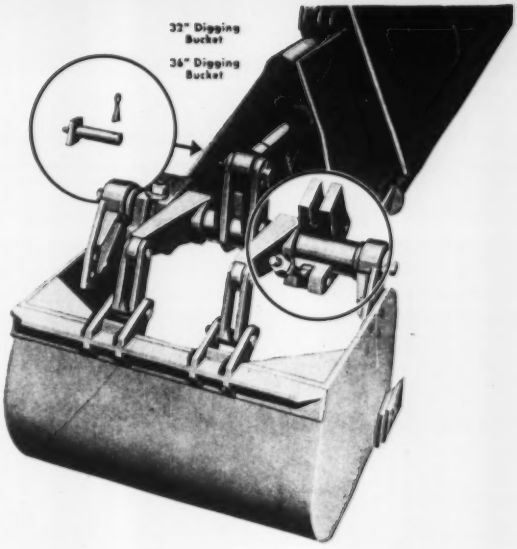
In charge for the state were J. J. Darcy, district engineer, H. S. Spitzer and G. Bartig. H. T. Tuthill represented the county and Mayor Richard Gilder the village. South Shore Contracting and Dredging Corp., of Patchogue, was contractor, with E. Sembler, president, and W. Christen, engineer, in direct charge of construction.



60" Ditch Cleaning Bucket

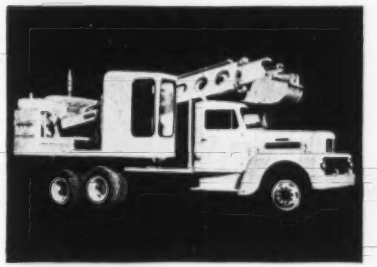


72" Formed Ditch Digging Bucket



33" Digging Bucket

36" Digging Bucket



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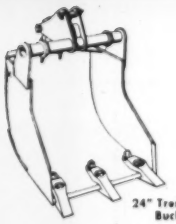
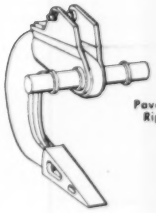
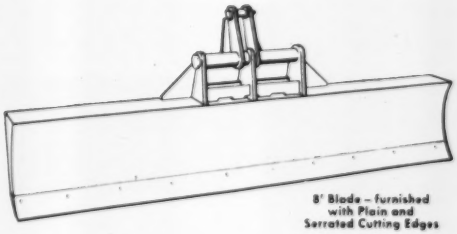


24" Trenching Bucket

15" Self-cleaning Bucket for Wall Footings



Pavement Ripper



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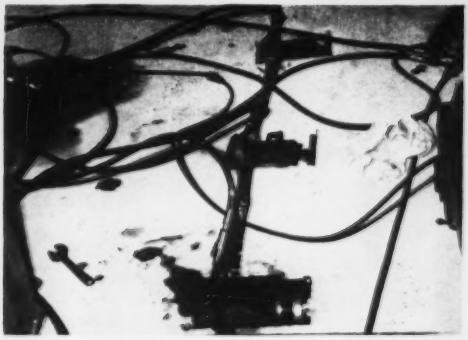
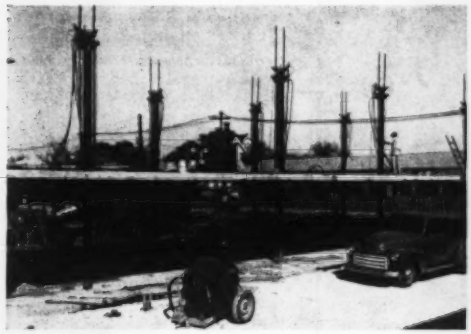


TWO-WAY PRESTRESS was applied to a concrete roof slab formed on the first-floor slab: (1) Asphalt-coated wires were tensioned with jacks at the ends of the slab (left). (2) For transverse prestress, two sections of the slab were jacked apart (right).



PRESTRESSED SLAB for the roof of a laboratory was lifted up by jacks set on top of the steel building columns.

Lift-slab concrete roof prestressed

Frederick E. Koebel

Structural Engineer
Southwest Research Institute
San Antonio, Texas

A FLAT-SLAB ROOF to be erected by the lift-slab method for a laboratory building at the Southwest Research Institute, San Antonio, Texas, was prestressed while still on the ground. Prestressing cut steel requirements more than 50% compared with similar designs in reinforced concrete.

This construction is the most recent result of the broad research and development program sponsored by the Institute of Inventive Research for development of the Youtz-Slick lift-slab method of building construction. In this method, large concrete slabs are cast at ground level and jacked into position. Then, embedded steel collars are welded to the building columns to anchor the slab (ENR June 29, 1950, p. 38, and Feb. 21, 1952, p. 30).

The prestressed roof slab is 88x38 ft by 6 in. thick. It is supported on steel columns spaced 24 ft on centers in both directions. It also cantilevers from 6 to 10 ft beyond the column at sides and ends of the building.

• **Two techniques used**—Prestress was applied in two directions after the concrete had acquired sufficient strength. For the purpose, ¼-in. dia. steel wires, coated with asphalt to prevent bond, were embedded in the slab. Groups of wires are spaced 12 in. on centers. Individual wires in each group are spaced about 3 in. apart. Their maximum eccentricity above and below the neutral axis of the slab is 2 in.

Longitudinally, the steel was tensioned in individual groups of six wires each. End anchorage was obtained by threading the wires through end-bearing plates and upsetting the ends (similar to the method used for the 110-ft pedestrian bridge over the Arroyo Seco, near Los Angeles, Calif., ENR May 10, 1951, p. 40.) At the end where the jacking force was applied, the stressed wires were held in place by steel shims inserted between stressing bars and the bearing plate on the slab edge. Then, the entire assembly was concreted in.

In the transverse direction, the prestress was applied by an entirely different method. The cantilever section of the slab was cast separately from the rest. Asphalt-coated steel wires, which were embedded in the concrete in pairs, 12 in. on centers, and anchored against bearing plates at the ends in both sections, were continuous across the gap. Hydraulic jacks were inserted in openings along the separated edges, and when the concrete had aged sufficiently, the two slab sections were jacked apart, tensioning the steel and compressing the concrete. The expanded gap between the sections was then filled with a fast-setting, high early strength grout

to maintain the prestress. Later, the prestressing jacks were removed.

• **Materials are high-strength**—The high-strength steel used has a yield point of 180,000 psi and a minimum ultimate strength of 220,000 psi. It was given an initial tension of 130,000 psi.

Concrete had a compressive strength of over 5,000 psi in 14 days. Seven sacks of cement per cubic yard of concrete were used, and the maximum slump was 3 in.

• **Shear is negligible**—In the Youtz-Slick method, slabs are lifted into position with steel collars embedded in the concrete around the columns. Shear developed at these collars is critical for conventional reinforced concrete slabs, and heavy reinforcement is needed to resist it.

With the two-way prestress, it was found that the effect of shear is greatly reduced—in fact, of minor importance. There is no necessity for special shear reinforcement around the collars. Also, prestressing may make it possible to reduce the size of the steel collar and the thickness of slab that might ordinarily be required for shear.

• **Model test checks design**—Before construction actually started on the roof slab, a model was tested to destruction. This test indicated that an adequate safety factor existed.

The model also shed some light on deflections to be expected. When the prototype slab was fixed in position, readings indicated that a slight upward deflection existed. The model test showed that when the design live load is applied, the slab will be level.

• **Steel saved**—Prestressing enabled the average steel reinforcement to be reduced from 3.5 or 4 lb per sq ft for a conventional reinforced concrete flat slab to only 1.6 lb per sq ft. This indicates that a substantial saving in steel can be obtained with prestressed concrete, particularly in long-span construction.

The dead weight of concrete can also be greatly reduced because of the thinner section that can be used. With this reduced dead weight, economic spans of flat slabs can be increased considerably over those now practical with reinforced concrete.

Cost of the prestressed slab is comparable with that of reinforced concrete.

Naturally, savings will be made as the length of span is increased. For very short spans, however, it is questionable that prestressing will be practical.

Experience with the laboratory roof indicates that prestressing is structurally and economically feasible for use with the Youtz-Slick method. As a result, further development is planned on the application of prestressed concrete to flat slabs.

Bridges stockpiled for 'rainy day'

The practice of putting something away for a rainy day carries into the field of bridge engineering, for the Spokane County, Wash., highway department.

Under the direction of Clyde J. Chaffins, county highway engineer, a program of constructing precast bridge units in the county yards, for installation on site-constructed piers, has been inaugurated and appears to be paying off in low costs and lessened traffic interruptions. A number of obsolete and unsafe bridges have been replaced during the past year with new spans featuring beams and floor slabs precast during otherwise "slack" periods of activity.

A uniform design, based on 30-ft span units, is employed. In a recent instance, one 30-ft wooden bridge was removed and a new concrete structure installed in 52 minutes on abutments previously built. Beams and slabs were trucked from the Spokane yards and set in place on the piers, joints were filled, and brackets for the guard rails were bolted to the curbs in that period. The bridges carry an H-15 rating.

• **Details**—Beam sections are 17½ in. high by 13½ in. wide, 30 ft in length, reinforced longitudinally with six 1¼ in. square rods at bottom and four ¾ in. round rods at top. Cast shoulders 2-in. wide support the slab edges, leaving an 11-in. joint between the slabs, with projecting reinforcement steel, to be filled with concrete on the site.

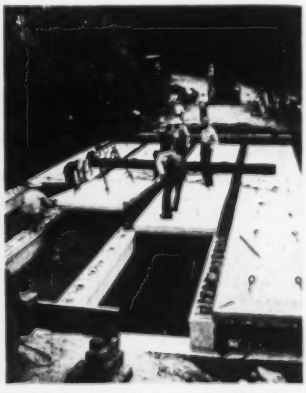
Beam spacing is 6 ft 8⅝ in. on centers. Slabs are 15 ft long and 5 ft 9⅛-in.-wide, 5½-in. thick. Reinforcing consists of ½ in transverse rods, 7 ft 1-in. long, 5½-in. on centers, 33 at top and 33 at bottom; with similar bars 14 ft 8 in long, also on 5½-in. centers, 12 at top and 12 at bottom. Transverse bars project 9½ in. to reinforce poured longitudinal joints.

Cost figure is about $6.76 per sq ft of slab, which may not be a record breaker, but figures as good economy when the more or less intangible factors of time saving in erection and time utilization in the off-site construction of beams and slabs are considered.

Design is by J. J. Sleavin, design engineer, under direction of Chaffins.

PRECAST beams from stockpile are loaded to be carried to the job site.

BEAMS are placed on piers at bridge site. Jobs like this fill in "slack" periods.



SLABS from stockpile are positioned on beams and spaces between grouted.

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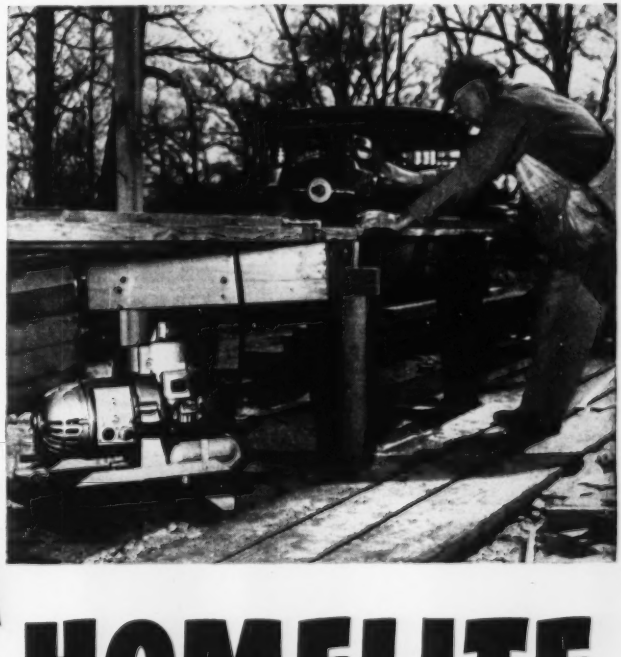

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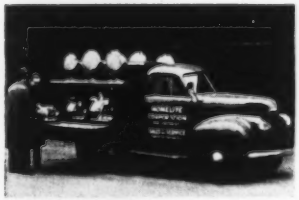

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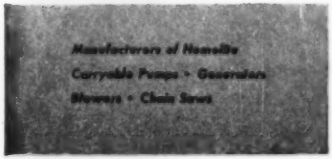

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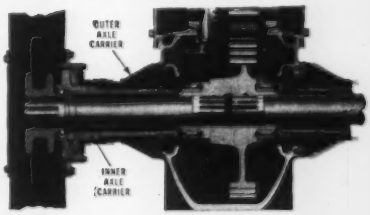

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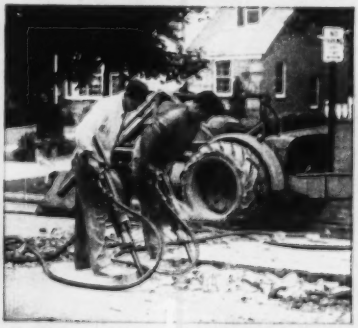

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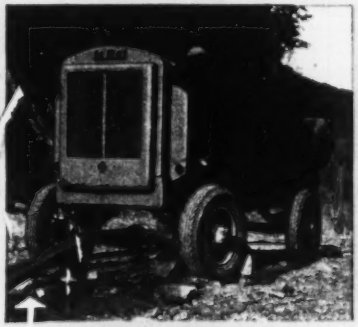

Le Roi Airmasters have 10% to 30% lower piston speed—for less wear, longer life, lower fuel consumption. Heavy-duty Airmaster engine is designed especially for compresser service — it is not just an automotive unit slowed down. Airmasters stay on the job longer, produce more air for less. Sizes, 60 to 600 cfm.

Le Roi-CLEVELAND Sinkers have strong rotation, powerful blow from snappy valve action. Drill more inches per minute. Easy to hold, kickback is reduced. Operators get less tired, drill more feet per shift. Sizes, 17 to 82 lbs., including the popular H10 and H111.

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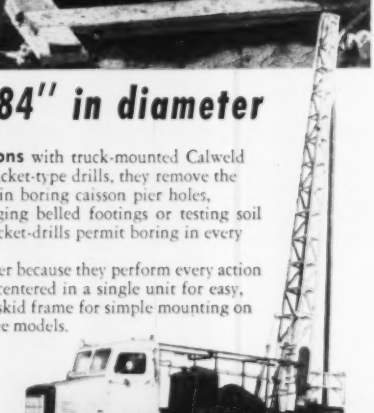

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OBITUARIES

John M. Fitzgerald, 64, chief engineer of the N. Y. City Board of Water Supply, died April 1. He was a civil engineering graduate of Manhattan College in 1907, and had been employed by the water supply board for the last 45 years continuously, except for two years of Army service in the first world war. His record with the board includes: Section engineer, Shandaken Tunnel; executive division of the Aqueduct Department; engineer in charge of the Kensico division, Delaware Aqueduct; department engineer; from March 1948 chief engineer.

Thomas W. Marshall, 80, civil engineer and designer of engineering work on many buildings in Washington, D. C., died March 28. He had practiced in the capital since 1904, right after his graduation from Purdue University. For many years he was engineering consultant to the architect of the Capitol and helped design the new roofs and ceilings for the House and Senate wings. He also did the structural design for the House Office Building, and buildings for the National Geographic Society, the Public Health Service, the Southern Railway and the Army Map Service.

Lieut. Comdr. William Francis Tueting, 36, a civil engineer and a Civil Engineer Corps officer assigned to the budget branch of the shore establishment division in the Navy Bureau of Ordnance, died March 24 in Wheaton, Md. He served with the Seabees in Alaska during World War II.

Vernon C. Bower, 69, civil engineer who made a geodetic survey during the construction of the Panama Canal, died at Indianapolis, Ind. March 24. A 1907 graduate of Purdue University, he was appointed junior chief engineer under Gen. G. W. Goethals and worked three years on the canal. From 1932 to 1934, he taught geodetics at Purdue. From 1934 to 1936 he was construction engineer for the Indiana State Highway Commission. For the last 16 years he was chief engineer for Geiger-Peters Iron Works.

Arthur W. Dean, 81, for 36 years chief engineer of state departments, first as New Hampshire State Highway chief engineer, and a member of the Massachusetts State Highway Commission, the Massachusetts Department of Public Works, and the Massachusetts State Planning Board, died March 20, in Winchester, Mass.

Walter Ludlow Taylor, 76, civil engineer and architect, died March 15 at Landsdowne, Pa. He was an employe of the 4th Naval District for many years, being design superintendent of the district from 1921 until his retirement in 1944.

John J. Ryan, 61-year old president of the John J. Ryan Contracting Co., Pittsburgh, Pa., died March 21. He entered the construction business as a water boy at the age of 12 and went into business for himself in 1917. He handled $5 million worth of construction projects in the next 10 years. Among his big jobs were widening Pittsburgh's Grant Street, raising and relocating the Carson Street Approach to the Point Bridge, and the road surface on the Liberty Bridge.

Alfred O. Cuthbert, 55, president of the Michigan Good Roads Federation, died March 21 at East Lansing. He was formerly engineer-director of the County Roads Association of Michigan. A member of Eddy and Cuthbert, dealing in construction equipment, from 1936 until 1942, he was a graduate of the University of Michigan school of engineering.

Walter Hoffman, 42, died in Washington, D. C., March 24. A graduate of Yale University, for many years he was a vice-president of Jeffress-Dyer, Inc., general contractors. Recently he was with the Clements Panel Co. of New York City.

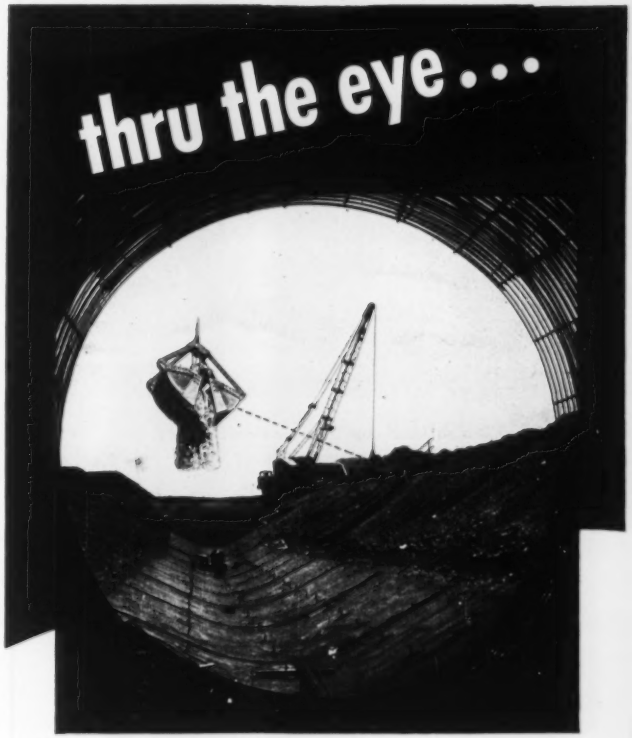
Albert J. Rommel, 64, vice-president of George H. Rommel Co., general contractors of Louisville, Ky., died March 23. He had been with the firm about 40 years.

Herman C. Helmle, 58, district engineer of The Asphalt Institute at Springfield, Ill., died there March 17. He joined the institute in 1947 after 30 years with the Illinois division of highways.

Frederic C. Rudolph, 47, a graduate of Stevens Institute of Technology, and in recent years engaged on the design of water supply and sewerage works with Parsons, Brinckerhoff, Hall and Macdonald, New York City, died recently. He spent a number of years in structural and mechanical work for contractors on heavy construction in the New York area.

James Rhea Luper, 63, Oregon state engineer from 1923 to 1930, died March 12 in Portland. After his resignation as state engineer he joined the Corps of Engineers, working in Oregon, Washington and Alaska.

(Continued on page 89)



of a Culvert, a Contractor, or an Operator an OWEN BUCKET *"looks good"*

To a practical person looking out of a culvert such as this one, comes the suggestion of exceptionally great and economical digging ability or an Owen Bucket wouldn't have been selected.

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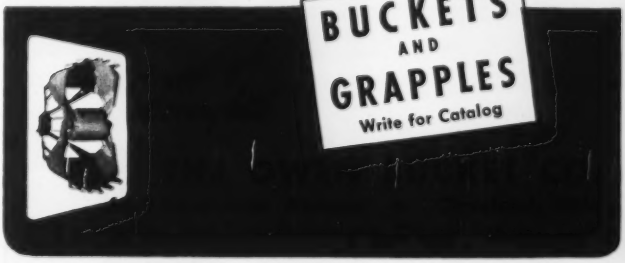

On Mobile Equipment

These Vickers Balanced Vane Type Pumps are especially designed and built for the severe service encountered with mobile equipment.

Their design automatically compensates for wear throughout pump life. Correct clearances are maintained continuously so that efficiency and delivery rate remain high. As a result, it is not necessary to select a larger pump to allow for loss of delivery under normal service conditions.

Hydraulic Balance . . . an exclusive feature of Vickers Vane Type Pumps for many years . . . eliminates pressure-induced bearing loads, providing longer life and less maintenance.

These Vickers Pumps are available in three basic sizes (shown at right) with a total of ten nominal delivery ratings and a variety of mountings. By unbolting and rotating the pump head the outlet may be placed parallel, opposite, or at right angle in either direction to the inlet. This greater adaptability to individual requirements means easy and inexpensive installation.

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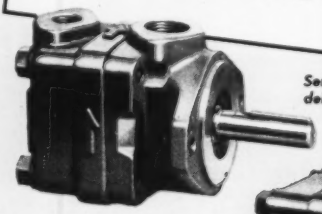
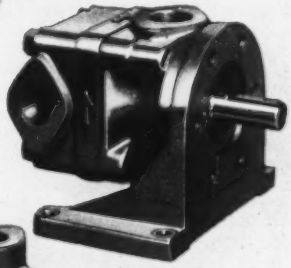
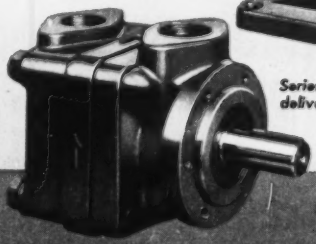


Series V-200 pump made in 4 delivery ratings—2 to 11 gpm.



Series V-300 pump made in 4 delivery ratings—12 to 24 gpm.



Series V-400 pump made in 2 delivery ratings—28 and 36 gpm.

***Ask for* New Catalog M-5100**

4513

Obituaries . . .

Col. John Millis, Cleveland, Ohio, 94, who retired in 1923 as U.S. Army engineer, died March 20. Since he retired, he wrote treatises on river flood control. He went to Cleveland in 1908 to take charge, for the Army Engineer Corps, of harbor improvements in Ohio, Indiana, and Michigan, staying until 1912, during which period he supervised the construction of the Cleveland breakwater. He was graduated from West Point in 1881. He served with the Engineer Corps in Cuba in the Spanish-American War. After that he was placed in charge of constructing fortifications on Puget Sound and river and harbor improvement there and in Alaska. Later he was in charge of fortifying Corregidor in the Philippines.

Wm. W. Cronin, 69, chief deputy city engineer of Syracuse, N. Y., from 1929 to 1939, died there March 26. He was a 1904 C.E. graduate of M.I.T.

John G. Munson, 67, a civil engineer who had served 31 years with U. S. Steel prior to his retirement Dec. 31, 1950, died at Pittsburgh March 29. Following his graduation from Yale in 1905, he served on tunnel construction in Washington, D. C., and in 1906-08 he was superintendent on construction projects in New Haven, Conn., and Baltimore, Md. From 1909 to 1919 he was construction superintendent for the J. G. White Engineering Corp. He was in charge of nitrate plant construction at Sheffield, Ala., during World War I. In 1930 he was elected vice-president, raw materials, of the former U. S. Steel Corp. of Delaware.

William M. Schlitter, 67, a civil engineer who at one time served as engineer with the New Castle County, Del., Levy Court, and later as an engineer with the Delaware School Foundation, died on March 25 in Wilmington. He was graduated from the University of Delaware in 1913.

Frank H. Morris, 81, retired civil engineer of the bridge division, Massachusetts Department of Public Works, died at Arlington, Mass., March 17. A Brown University graduate, he was employed by the department for 37 years until 1940.

Ard Blackford, 90, Ashland, Ohio, cement contractor, whose life motto, "Keep Sweet," is indelibly printed on sidewalks throughout that city, died March 11. He retired last April after 43 years in business.

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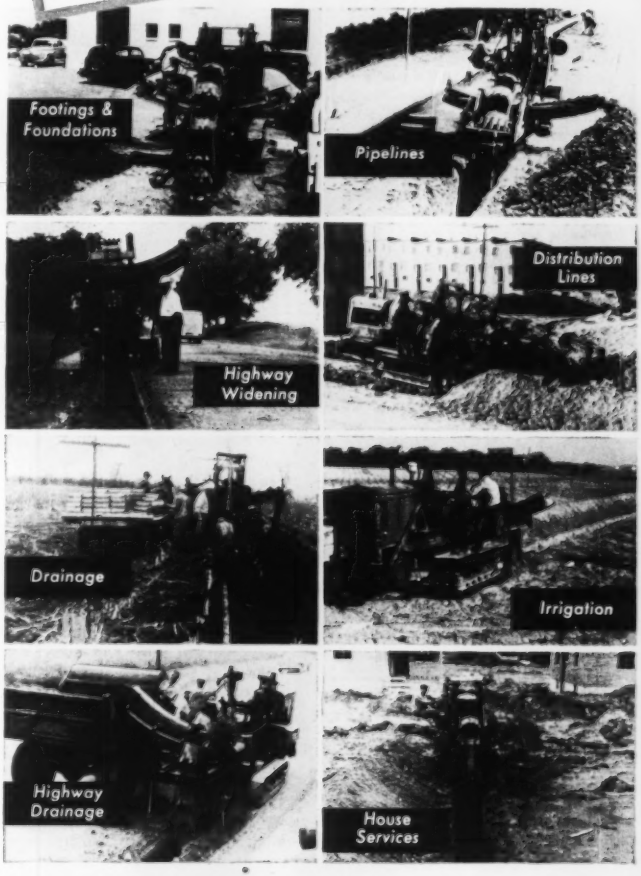

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COMMENT

from the

BUTLER ENGINEER

Of Building Booms and Brassieres with Bullets

Well, I'm back to a diet of gruel, brewer's yeast and gallons of milk after the carousel at the Ready Mixed Convention in Chicago and the Concrete Products jamboree in New York. Too much terrapin and lobster, I guess. Couldn't be anything else.

Seriously, the best parts of both meetings were the opportunities to renew old friendships and make a lot of new ones. I do want to thank everyone — past, present and future owners of Butler Plants—who stopped for a visit at the Butler exhibits. It's heartwarming to know there are so many friends of the products we make and of the organization that makes them.

Have any of you been up to Canada recently? They're in the most spectacular, triple-barrelled, hell-a-whippin' construction program I've ever seen. And the money to pay for it, too.

I look at the controls, artificial shortages, arguments, red tape and indecision on our side of the border and I feel we're "fiddling while Rome burns." *Canada, gentlemen, has thrown the fiddle away and picked up the trowel.*

And if they say they're going to build the St. L. Seaway *alone* if necessary — it ain't exhaust from an idling engine. They can do it and will — and we'll pay at their toll gate.

Sat in the audience at a T-V studio in New York. Western stuff. Girl a couple of seats over said, "What do you call that thing the cowboy's wearing — you know, that brassiere with bullets?" *Shades of Buffalo Bill! What a name for a shoulder holster!*

Yours for better roads and more of 'em,

The Butler Engineer

BUTLER BIN COMPANY
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RECEIVES POSTER—Andrew G. Clausen, Jr. (center) receives one of the EMC's new engineering posters from T. A. Marshall, Jr. as B. G. A. Skrotzski looks on.

Commission fights manpower shortage

Terming the shortage of engineers as a current difficult problem of the U. S., T. A. Marshall, Jr., executive secretary of the Engineering Manpower Commission of Engineers Joint Council said, "Every secondary school in the United States will receive a four color poster designed to help alleviate the critical shortage of engineers by urging students to consider the opportunities in this profession."

Marshall, in pointing out that the high school program to recruit new engineers was just one of the many solutions offered by the Engineering Manpower Commission to alleviate the shortage, stated that other solutions rested with the Department of Defense and with industry and called for top utilization of every engineer in the services in government, or in civilian industry.

He cited a present backlog of 60,000 engineers and said "the need has not been filled. Even if it were," he added, "about 30,000 engineers would be needed annually to make ends meet. All we can foresee, according to present enrollments, is a scant 15,000 to 17,000 per year graduating from engineering colleges for the coming years."

"The high school program," he said, "is the only source from which a volume supply of qualified people to fill the now existing empty ranks in the engineering profession can come. This solution is a long range one but our very survival would be endangered if we allowed our supply of trained minds to continue to diminish."

He pointed out that over 400 local delegates of EMC, who are located in all of the 48 states, have already started programs directed at the secondary schools. The Engineering Council for Professional Development, Marshall pointed out, with its many local committees throughout the nation, are making a concerted effort toward educating general guidance councilors on how best to guide qualified students into engineering colleges.

"Industry too," he declared, "in cooperation with the deans of engineering colleges all over the country, has made an effort toward the high schools. "Open House" programs sponsored by industry, as well as radio, and television programs, and the formation of engineering clubs have been utilized by these agencies to interest qualified youngsters in entering engineering colleges," he said.

"We need to realize," Marshall

(*Continued on page 93*)

ORE DOCK

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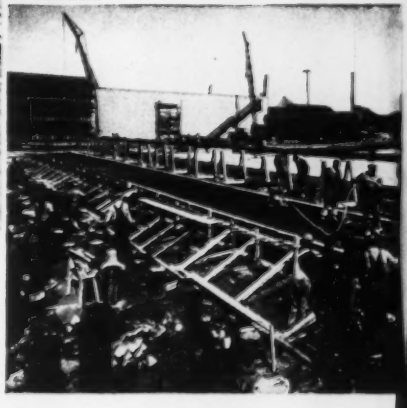

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DIVISION OF NATIONAL STEEL CORPORATION

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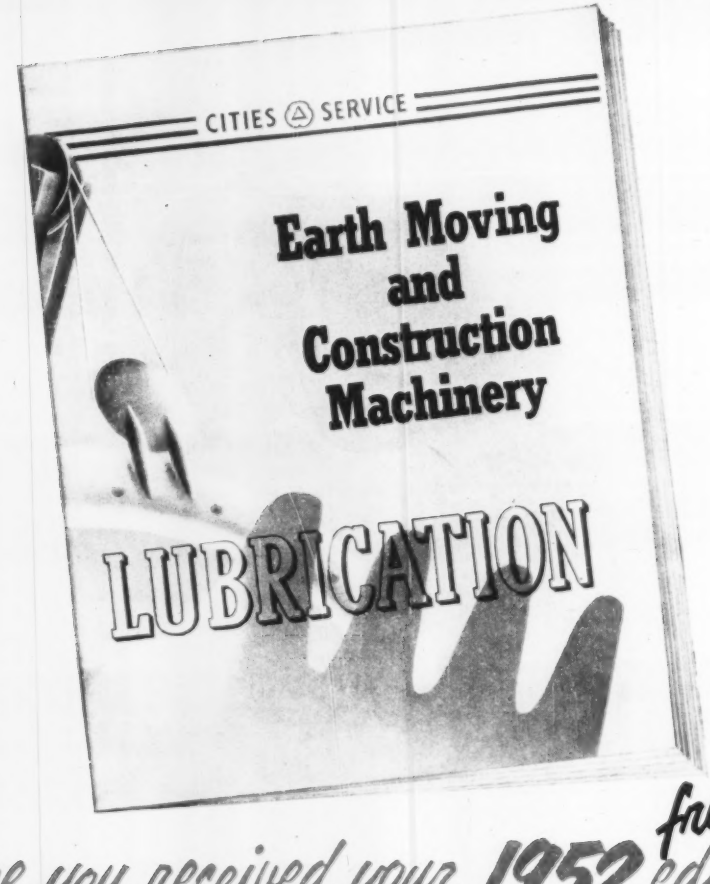

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said, "that in this world struggle, whether it is cold war or hot war, the western world is hopelessly out-numbered. "Therefore," he asserted, "for defense we must look to our engineering and scientific superiority." Marshall declared that, "if we lose that, we lose our freedom."

Name engineer to direct world sanitation program

Dr. Herman G. Baity, head of the Department of Sanitary Engineering at the University of North Carolina, Chapel Hill, N. C., has accepted appointment for one year as director of the newly-established Division of Environmental Sanitation of the World Health Organization, an agency of the United Nations. His headquarters will be at Geneva.

In his new position he will function directly under the Assistant Director General for Advisory Services in promoting sanitation programs designed to improve world living standards, health and well-being.

Dr. Baity has been associated with the WHO in important assignments on two previous occasions. In the fall of 1950 and in the summer of 1951, he served as sanitary engineering advisor to the European Regional Office. In this connection, he organized the first seminar for European countries, including Italy, Greece, Yugoslavia, Holland and Finland.

Before his WHO assignments he had much foreign duty. In 1943-44 he served as chief sanitary engineer for Brazil of the co-operative health program carried on by the Institute of Inter-American Affairs and the Brazilian government. In 1946, and 1948-50 he returned to Latin America on consulting missions in Brazil, Uruguay, Bolivia, Peru, Ecuador, Costa Rica, Guatemala and Mexico.

In addition he has actively participated in various engineering and public health organizations in the United States. He is president of the Inter-American Association of Sanitary Engineering. From 1933 to 1936 he was North Carolina state director of the Federal Emergency Administration of Public Works, which carried out construction projects in excess of $100 million.

A graduate of the University of North Carolina and Harvard University, he joined the university faculty in 1920 as instructor, and served as dean of the School of Engineering from 1930 to 1936 and as acting dean of the School of Public Health in 1946-47.

(Continued on next page)

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Heavy-Duty *Air-Cooled*

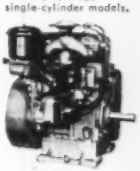
ENGINES Fit the Job and the Machine

On every one of your construction jobs where you need 3 to 30 hp. engine power... *HEAVY-DUTY SERVICE is what counts most.* Power that is dependable for your purpose under your operating conditions. Power that is easy to control and handle. Power that delivers maximum torque at usable speeds. Power that is both efficient and economical.

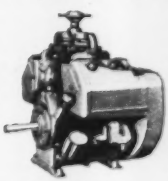
It is because Wisconsin Heavy-Duty Air-Cooled Engines meet all of these requirements that they are *first choice everywhere in construction service,* within a 3 to 30 hp. range.

Write for complete data about 4-cycle single-cylinder, 2-cylinder and V-type 4-cylinder models, 3 to 30 hp.

3 to 9 hp. single-cylinder models.

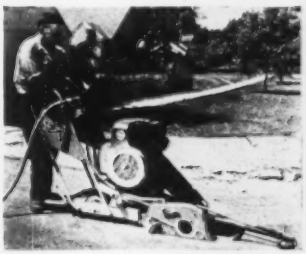


7 to 13 hp. 2-cylinder models.

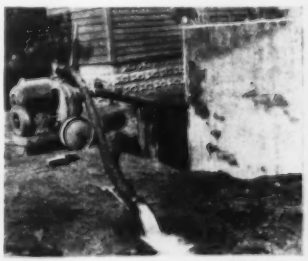


15 to 30 hp. V-type 4-cylinder models.

WISCONSIN-Powered mixer, built by Chain Belt Company, Milwaukee, Wisconsin.



WISCONSIN-Powered concrete saw, built by Clipper Manufacturing Co., Kansas City, Mo.



WISCONSIN-Powered pump, built by Construction Machinery Co., Waterloo, Iowa.

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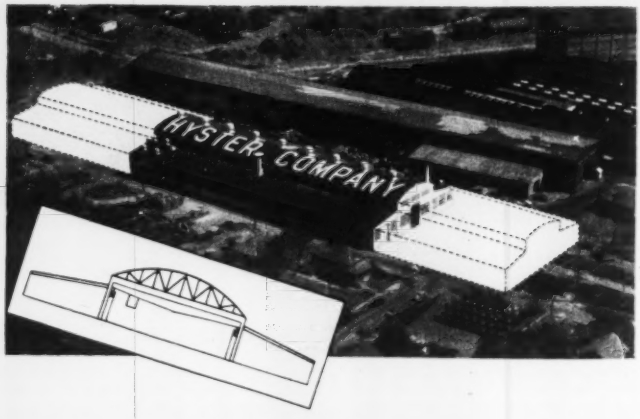
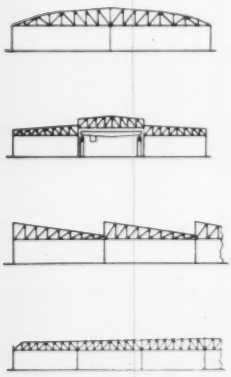


Expandable Buildings for Growing Industry



Readily available in spans up to 250 feet or more, trusses and framing by Timber Structures, Inc., provide the practical answer to new industrial plant construction and to expansion of existing buildings.

These structural units are genuinely economical, both as to initial cost and lack of maintenance. Flexible and adaptable, they are suitable for any roof contour—flat, arched, sawtooth, or monitor. Design may include local loadings such as hoists, monorail installations, heating and ventilating units.

Details of span, dimensions, construction and common adaptations are contained in new booklet, "Industrial Buildings". Your nearest Timber Structures office has a copy for you; or fill in and mail the coupon.

TIMBER STRUCTURES, INC.

P. O. Box 3782-C, Portland 8, Oregon

Offices in New York, Chicago, Kansas City, Missouri; Dallas, Texas; Seattle and Spokane, Washington

TIMBER STRUCTURES OF CALIFORNIA • Oakland, California
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Local Representatives throughout the United States and Canada

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TIMBER STRUCTURES, INC.
P. O. Box 3782-C, Portland 8, Oregon
Please send me a copy of your booklet, Industrial Buildings.

Name_____
Company_____
Address_____
City_____ Zone_____ State_____

Men and Jobs . . .

Highway engineer resigns

Fred R. White, Iowa Highway Commission chief engineer for 33 years, has resigned effective Sept. 1.

Commission Chairman Sanford Zeigler, Jr., said that White, 68, will serve as consultant after his retirement.

White received his Bachelor of Science degree in civil engineering at Iowa State College, Ames, Ia., in 1907. He worked on the Key West extension of the Florida East Coast Railroad before joining the Iowa Highway Commission.

Careers . . .

• **Appointed—Foster H. Simpson** has been named chief engineer of the New York Central Railroad at Chicago . . . **Lt. Col. Joseph I. Gurfein,** recently returned from 17 months' service in Korea has replaced **Lt. Col. William H. H. Mullin** as executive officer in the Philadelphia district, Army Engineers . . . **August E. Niederhoff** has taken charge of the dam division of Gannet Fleming Corddry and Carpenter, Inc., Harrisburg, Pa . . . **James E. Reeves,** veteran of 22 years service with the Army Engineers has been named deputy director of the AEC's Office of Test Operations in Albuquerque, N. Mex. . . . New executive vice-president of the Timken-Detroit Axle Company is **Frederick W. Parker, Jr.**

Resuming his duties as chairman of the New York State Building Code Commission, **Col. Edward J. McGrew** has completed his assignment with the Army. . . . **Brig. Gen. O. E. Walsh,** North Pacific division engineer, was assigned to organize and command the new Mediterranean division of the corps of engineers with headquarters at Casablanca, French Morocco. The new division will cover all of North Africa, Turkey, Libya, and Saudi Arabia. . . . **Thomas A. Berrigan,** chief engineer sewerage division, Metropolitan District Commission, Boston, Mass., has been reappointed a member of theWater Pollution Control Board, U.S. Public Health Service. . . .

The Atomic Energy Commission is establishing an office of test operations at Albuquerque, N. M. **Reuben E. Cole,** director of engineering and construction for the AEC Santa Fe Operations Office at Albuquerque, is acting director. . . **James Dorr McFarland** is the new University of Texas Engineering Drawing Department chairman. **McFarland,** a faculty member for 29 years, succeeds **W. H. McNeill,** retired.

(Continued on page 98)

TODAY'S NEWS IN PORTABLES

THE GARDNER-DENVER 600!

IT'S A 600 FROM THE GROUND UP

Here's a brand-new machine that gives you famous Gardner-Denver dependability in a 600 cubic foot portable. Compressor, engine and undercarriage are all specially designed for high capacity performance.

And a FULL 600

Delivers a full 600 cubic feet of air per minute, actual capacity, at 100 pounds pressure. The compressor is an 8 x 6½ x 6, operating at only 1200 r.p.m.

SMOOTH RUNNING

Moderate operating speed and balanced construction minimize vibration.

FULLY WATER-COOLED

Fully water-cooled compressor cylinders assure low discharge temperatures on the hottest day of the year—properly lubricated cold weather starts. Two-stage design insures higher output for all work.

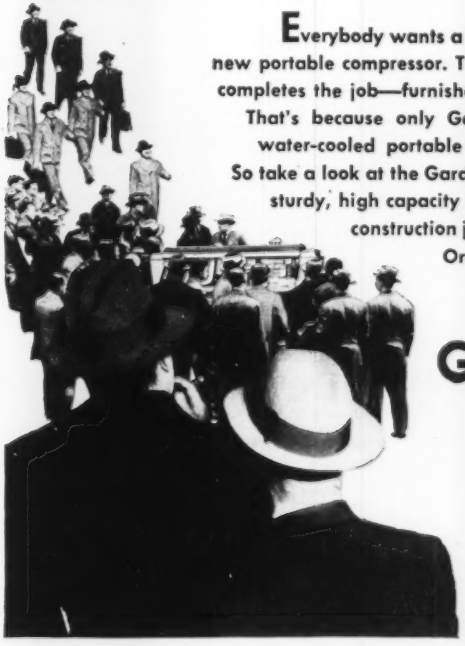
Engineered for Economy

Extra-large valve areas and air passages — properly engineered ratio of low pressure to high-pressure cylinders — are some of the features that raise compressor efficiency—lower operating costs.

RUGGED, STRONG UNDERCARRIAGE

Travels access roads safely—enables you to spot the Gardner-Denver 600 anywhere. Deep oil sumps on both compressor and engine permit off-level operation when necessary.

MORE VALUE FOR YOUR MONEY



Everybody wants a look-see when Gardner-Denver introduces a new portable compressor. They know from experience that a Gardner-Denver completes the job—furnishes low-cost compressed air every single day. That's because only Gardner-Denver makes a two-stage, fully water-cooled portable for all weather, and for any altitude. So take a look at the Gardner-Denver 600 today. See for yourself how this sturdy, high capacity portable can speed your big tunnel and construction jobs. It'll give you new ideas on low bidding. Or write us for the specifications.

SINCE 1859

GARDNER-DENVER

Gardner-Denver Company, Quincy, Illinois

In Canada: Gardner-Denver Company (Canada), Ltd., Toronto, Ontario

THE QUALITY LEADER IN COMPRESSORS, PUMPS AND ROCK DRILLS

4 wheel drive PAYLOADER

It takes traction in all kinds of going to get jobs done on schedule and at a profit . . . traction on which you can rely the year 'round . . . traction that handles big loads quickly, easily and economically.

Hundreds of contractors own 4-wheel drive Model HM "PAYLOADERS" and know what they can do. A large percentage of these contractors have placed repeat orders—a fact that speaks louder than words of their satisfaction with the traction, flotation and all around ability of this unusual wheeled tractor shovel. They also value its mobility to get to the job fast under its own power . . . its ability to do so many jobs—to dig, load big hauling units, bulldoze, spread, backfill, carry, lift, lower, pull and push.

Owners report that their drivers like the Model HM because it rides with ease and operates with ease—thanks to the big pneumatic tires, large comfortable seat, power-boosted steering and fingertip hydraulic control. Once you see this "PAYLOADER" in action, you'll want one for your jobs.

Contact your "PAYLOADER" distributor today or write The Frank G. Hough Co., 772 Sunnyside Ave., Libertyville, Illinois.

...has traction you can trust

plus 16 M. P. H. TRAVEL SPEED

Write for catalog on the 1½ yd. Model HM PAYLOADER or six smaller sizes down to 12 cu. ft. There is no obligation.

SAY "HUFF"

PAYLOADER®

LOAD, HAUL and UNLOAD
MORE Heavy Equipment IN LESS TIME

ROGERS

● Versatile performance features plus well known Rogers quality construction embodied in work tested design, puts the Type "TPG" Power Lift Detachable Gooseneck Trailer in a class by itself for an "all purpose" single unit.

If you contemplate the purchase of a new trailer, by all means investigate this increasingly popular model. Write for literature today.

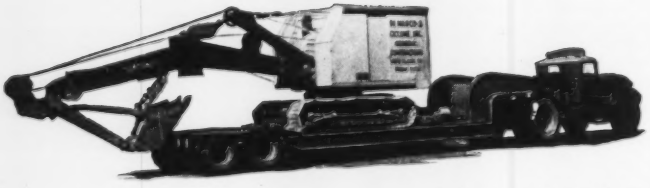
5 EXCLUSIVE ADVANTAGES

1. Carries heavier loads on larger tires.
2. Detaches quickly for fast, easy front loading.
3. Stoops to clear low overhead obstructions.
4. Raises its deck to clear high banked crossings.
5. Is detached, loaded and reattached in 5 minutes.

THE ROGERS *Power Lift* DETACHABLE GOOSENECK CAN BE OBTAINED ON ANY STANDARD ROGERS DROP DECK TRAILER

EXPERIENCE *builds 'em* PERFORMANCE *sells 'em*

ALBION, PENNA.



A Rogers Type "D" Trailer

Men and Jobs . . .

Greer & McClelland, consulting engineers of Houston, Tex., announce the opening of offices in Montclair, N. J. with **David M. Greer** resident partner. . . . Appointed dean of engineering at Illinois Institute of Technology, Chicago, is **Dr. Ralph G. Owens**, a member of the college staff since 1946 . . . **Gilbert D. Grey**, in charge of the Tazewell-Bland, Va. residency of the Virginia State Highway department has been promoted to district engineer and assigned to duty in the Staunton district . . . **Earl E. Ensminger**, formerly commercial credit analyst at the Cleveland Trust Co. has been appointed Treasurer and Member of the Board of Directors, The Rybolt Heater Co., Ashland, Ohio.

● **Elected**—**Ellery Sedgwick** was elected president of Medusa Portland Cement Co. He has resigned his position as vice president of Cleveland's National City Bank.

● **Honored**—Common Council of Syracuse, N. Y., passed a resolution honoring City Engineer **Nelson F. Pitts** for the 38 years of his service with the city . . . **Leif J. Sverdrup**, head of the consulting engineering firm of Sverdrup & Parcel, St. Louis, Mo., received an honorary degree at the University of Missouri . . . A Knoxville, Tenn., engineer has received double honors. His own nation honored him with a gold medal for "exceptional service" and the Panamanian government made him a knight of the Order de Vasco Nunec de Balboa. The engineer, **John Humbard**, has spent 19 years building highways and airports in foreign places.

● **Retired**—**Col. Frederic F. Frech**, CE, retired after 35 years service in the N. S. Army, Corps of Engineers. His last post was North Atlantic division engineer . . . After 44 years with the Chicago & North Western Railroad, **Edward C. Vandenburgh**, civil engineer, resigned as chief engineer . . . **Col. Edwin Coit Kelton**, head of the California division of beaches and parks engineering section since 1945, has retired. He took the state job in 1945 after retiring from the United States Corps of Engineers.

Frederick Ohrt has submitted his resignation as manager and chief engineer of the Honolulu Board of Water Supply after nearly 27 years as head of the system. He resigned after a Honolulu court had appointed him to a lifetime job as one of the three trustees of the James Campbell estate at a yearly salary of $16,000.

NOTHING PAYS OFF LIKE...

PERFORMANCE

LULL SHOVELOADERS are specially engineered to mount on and utilize the full power of industrial wheel-type tractors.

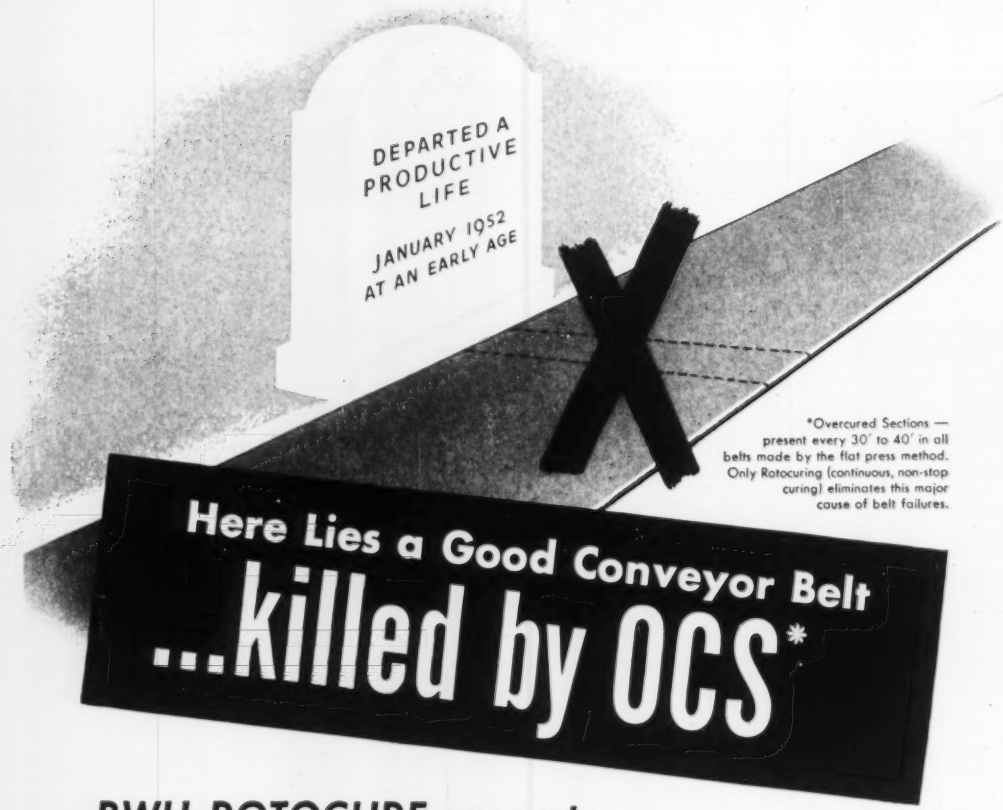
Outstanding performance makes Lull Shoveloaders top money-makers in the construction business. Field competition has proved time and again that Shoveloaders can move more material . . . faster and at lower cost than any comparable machine.

A clue to Shoveloaders' performance is the faster and smoother loading cycle. (1) Shoveloaders' powerful crowding action scoops up heaping buckets at every pass. (2) Shoveloaders' full hydraulic control gives the operator finger-tip command of hoisting, tilting and dumping. (3) Shoveloaders' higher lift and longer reach load trucks and bins from one position—cuts backing, turning, and blocking of traffic.

Learn how you can profit by Shoveloader performance. See your Lull Distributor, TODAY . . . or Write to:

Manufacturing Company

322 W. 90th St. • Minneapolis 20, Minn.



*Overcured Sections — present every 30' to 40' in all belts made by the flat press method. Only Rotocuring (continuous, non-stop curing) eliminates this major cause of belt failures.

Here Lies a Good Conveyor Belt ...killed by OCS*

—BWH ROTOCURE prevents these fatalities — look for it in the belts you buy

Press overlaps, inherent in belts cured by flat press methods, are a primary cause of early belt failure. The overlaps result in overcured segments 2" to 4" wide across the entire belt because vulcanization is *not* continuous. These 2" to 4" segments are *double cured* — and *double curing weakens the structure!*

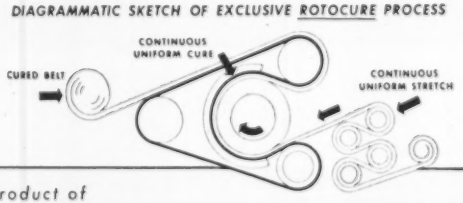
When you buy a BWH conveyor belt made by the *continuous* ROTOCURE process of vulcanization you obtain a *uniformly strong* belt *overall*. The weakened segments due to overlapping that sabotage operations and inflate belting costs are completely eliminated. With continuous, endless vulcanization you'll be ahead four ways:

1. In increased belt flex life — as much as 40%
2. In elimination of mechanical distortion at the press ends
3. In constant, uniform stretch
4. In uniform, abrasion-resistant covers

These characteristics of BWH Conveyor Belts mean minimum belt maintenance costs, longer belt life and appreciable per ton savings in the cost of what you convey! Ask your BWH distributor to show you how these highly serviceable belts can help you. Or write us direct.**

**Ask him also about BWH Rotocured Transmission Belts. Because they permit operation at lower tensions, you are assured of longest possible belt life.

DIAGRAMMATIC SKETCH OF EXCLUSIVE ROTOCURE PROCESS



BWH
DEPENDABLE RUGGEDNESS

Another Quality Product of

BOSTON WOVEN HOSE & RUBBER COMPANY

Distributors in all Principal Cities

PLANT: CAMBRIDGE, MASS. • P.O. BOX 1071, BOSTON 3, MASS., U. S. A.
WAREHOUSE STOCK, 111 NORTH CANAL ST., CHICAGO, ILLINOIS

MATERIALS AND LABOR PRICES

Market quotations on construction materials and wage rates reported monthly by ENR correspondents
May Materials, and Labor Prices will appear in May 8, 1952 issue

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* (Per bbl. C/L lots cash. dis. not deducted)			SAND AND GRAVEL (Per ton, carload lots)			CRUSHED STONE (Per ton, carload lots)		CRUSHED SLAG (Per ton, carload lots, f.o.b. plant)		CONCRETE BLOCK 8 x 8 x 16-in.; truckload del.: per block		CONCRETE Ready Mixed 1:2:4, over, 50 c.y., del.
	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand	grav.	Lt. wgt. agg.
Atlanta	$3.75	$3.45	3.25	$2.00	$2.00	$1.75	$2.10	$2.10	$1.65	$1.85	$0.191	$0.191	$11.50
Baltimore	3.71	3.40	3.35	2.50‡a	2.50‡a	2.00‡a	2.70‡a	2.80‡a	2.60‡a	2.55‡a	.17	.17a	10.80
Birmingham	3.11	2.68	2.82g	2.24n	2.24n	1.94n	2.50	2.50	1.10	1.30	.165	.165	7.85
Boston	4.01	3.69	3.81	2.50a	2.50a	2.50a	1.50a	1.60a	....	....	.206	.22a	11.50k
Chicago	3.29	2.99	3.94	3.00‡b	3.00‡b	3.40‡b	3.00‡b	3.00‡b	2.00‡	2.00‡	.22	.22b	11.50
Cincinnati	3.53	3.23	3.32	2.00‡c	2.00‡c	2.05‡c	2.35‡h	2.35‡h	....	....	.21	.225a	10.95f
Cleveland	N. A. in C. L.		....	2.05ef	1.85f	1.70	3.81a	3.81a	2.85‡	2.85‡	....	.23	13.00g
Dallas	2.95	2.65	2.70	2.18	2.28	1.84	2.22	2.38	....	....	.125e	.215	9.30
Denver	3.80	3.64	3.89	1.85	2.00	1.20	....	....	....	....	.22	.255a	10.50
Detroit	3.27f	3.00	3.05	4.25‡b	4.25‡b	3.75‡b	4.25‡	4.25‡	4.25‡	4.25‡	.19	.20a	10.30f
Kansas City	3.30	3.03	3.15	1.85‡	1.85‡	1.50a	2.00‡a	2.00‡a	....	....	.23ag	.23e	10.95b
Los Angeles	4.00a	3.60a	4.72	1.95a	2.20a	1.95a	2.08a	2.08a	....	....	.11fm	.22m	10.43‡hm
Minneapolis	3.73d	3.42d	3.36	2.30‡ag	2.30‡ag	1.35‡ag	2.50‡ag	2.50‡ag	....	....	.23ak	....	11.25fi
Montreal	3.01ac	2.86ac	....	2.50	2.50	2.25	1.05ij	1.30ij	....	....	.20	.20a	10.40ak
New Orleans	3.20e	2.90e	3.18	2.32	2.32	1.82	....	....	1.05	1.25	.25	....	12.90
New York	3.81	3.50	3.40	2.35bk	2.35bk	1.60bk	2.50bl	2.50bl	....	....	....	....	11.30an
Philadelphia	3.38/3.77‡	3.07/3.44‡	3.38/3.43‡	2.68‡	2.78‡	2.15‡	2.10‡	2.15‡	1.75	1.65	.22/.25	....	11.50
Pittsburgh	3.32	3.04	3.32	2.15‡	2.15‡	2.10‡	2.60‡	2.60‡	2.15	2.15	.23d	.23d	11.00
St. Louis	3.27/3.48b	2.84/3.10b	3.05/3.22	2.90am	2.70am	2.30/2.70am	1.70j	1.70j	1.25	1.25	.21b	.27cs	10.40
San Francisco	3.36	2.96	....	1.92	1.92	2.02	2.02	2.02	....	....	....	.22cl	10.30c
Seattle	3.75a	3.25a	4.50a	3.00‡bm	3.00‡bm	3.00‡bm	3.50‡bm	3.50‡bm	....	....	24f	.3325j	10.95j

‡Delivered. * Prices incl. dealers comm. except as noted.
CEMENT: a Subj. to 10¢ dis. b Less 2% for cash. c CL price dealers' comm. not incl. d Dealers sell only LCL. e Plus switching charges. f Paving up to $3.80 for cement brought in from outside sources. g Warehouse pickup. h LCL.
SAND, GRAVEL, STONE & SLAG: a Truck lots. b Per cu. yd. c 5 tons or more. e ¼". f Pea gravel. g Less 5% for cash. h Less than 5 tons. i Sales tax incl. j F.o.b. quarry. k Barge lots sad. l F.o.b. scow Hudson river. m Less 2% for cash. n F.o.b. cars.
CONCRETE BLOCK: a Cinder. b Waylite. c Haydite. d Celocrete. e 5‡ x 8 x 12 in. f 8 x 4 x 16. g F.o.b. truck at job. i Less 2% for cash. j Less 1% for cash. k 8x8x18. l F.o.b. plant San Rafael. m F.o.b. yard.
READY MIXED CONCRETE: a 5 cu. yds. or over del. Man. b 25 cu. yds. or more. c 10-100 cu. brackets. e 2,000 lb. coner. f 2500 lb. comp. g Aver. haul 7-9 mi. zone. h Less 50¢ for cash. i 5% off for cash. j 2% off for cash. k Sales tax included. l 1:2½:4. m F.o.b. yard. n Plus escalator clause.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10c. per bbl. for payment within 15 days of date of invoice. Subject discount 10c. per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 30¢ per bbl., not refundable

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn.	$2.60†	Buffington, Ind.	$2.55†	Steelton, Minn.	$2.65†	Muskegon, Mich.	$2.70†	Toledo, O.	$2.60†
Clinchfield, Ga.	2.60†	Independence, Kan.	2.50†	Leeds, Ala.	2.45†	Saginaw, Mich.	2.60†	Milwaukee, Wis.	2.75†
Kingsport, Tenn.	2.60†	Hannibal, Mo.	2.55†	Duluth, Minn.	2.65†	Wyandotte, Mich.	2.60†	Green Bay, Wis.	2.75†
West Des Moines, Iowa.	2.65†	Northampton, Pa.	2.60†	Hudson, N. Y.	2.60†	Buffalo, N. Y.	2.60†	Ironton, O.	2.60†
Nazareth, Pa.	2.60†	Universal, Pa.	2.65†	Alpena, Mich.	2.50†	Oswego, N. Y.	2.75†	Montreal City	2.61
Bath, Pa.	2.60†	Waco, Tex. (+ 10¢ tax)	2.50†	Detroit, Mich.	2.60†	Cleveland, O.	2.60†	W. Winfield, Pa.	2.65†

†*Prices to hold for second quarter of* 1952.

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK: Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	PAVING ASPHALT (Per ton, less than 80 penetration): Tank car	Drums	ASPHALT BINDERS—FLUXES (Per gal., 80-300 penetration): Tank car	Drums	CUTBACK ASPHALT (Per ton): Tank car	Drums	ROAD OIL (Per gal.): Tank car	ASPHALT EMULSION (Quick-breaking) Per gal.: Tank car	Drums
Atlanta	$73.00	$35.00	$2.25	$26.00	$32.25	$0.1975	$0.339	$0.095w	$0.185w	$0.105	$0.115	$0.225
Baltimore	150.00‡	57.70‡	.....	22.00	.....	.0809	0.15	.09w	.17w	.09s	.09	0.12
Birmingham	.....	45.50i	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston	.....	.....	.....	24.50a	35.50a	22.00ax	35.50ax	.....	.....	.09x	.105a	.22a
Chicago	155.00‡	90.00‡b	4.40/4.60‡f	20.25b	30.25b	19.25bv	29.25bv	.0875bw	.16bw	.075b	.....	.....
Cincinnati	.....	.....	.....	22.50p	.....	.....	.....	.10w	.....	.....	.....	.....
Cleveland	200.00	55.00d	4.12g	23.00q	.....	23.00q	.....	.1025‡w	.19‡w	.....	.114	.194
Dallas	e	40.00	e	24.05	43.09	.1016	.2103	27.09	47.87	.0980	.1041	.2128
Denver	.....	48.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	92.00	.....	26.82	.....	26.82v	.....	.117w	.....	.0925	.....	.279w
Kansas City	e	e	e	18.55cl	...	.....	.....	.0725w	.....	.0635e	.....	.....
Los Angeles	e	.....	e	15.50dmz	....	15.50dsz	.....	17.00dz	.....	16.00dv	.0825f	.1525f
Minneapolis	.....	.....	2.83h	23.90	.....	22.90	.....	.0994w	.....	.0894	.1035	.....
Montreal	.....	e	e	27.10n	36.65n	.135n	.183n	16.30nu	18.80nu	.132n	.184nu	.225nu
New Orleans	.....	.....	.....	17.50a	....o	17.50ax	.....o	.085nw	.....o	.0882	.085	.....
New York	.....	.....	3.12f	26.26q	47.50q	25.26st	46.58st	.1071w	.2021w	.1071	.1072	.1993
Philadelphia	175.00	110.00	4.06	22.00	.....	.....	.....	.095w	.....	.....	.....	.....
Pittsburgh	165.00	48.00	4.60	23.00	37.00	.10	.20	27.00	39.00	.095	.09	.205
St. Louis	.....	.....	.....	18.68f	.....	.1698	.....	.0865/.089w	.....	.15	.....	.....
San Francisco	.....	55.00e	.....	17.00q	32.50qp	17.00qkv	32.50qkv	19.00q	36.50q	17.50w	.085q	.....
Seattle	.....	.....	.....	17.00A	37.50A	16.25Av	.....	19.50A	.....	18.50Aw	.095A	.195Ar

‡ Delivered.
PAVING BRICK & BLOCK: a CL. b 3½ x 4 x 8½. c 2½ x 8½ x 4. d LCL, truck deliveries. e Not used. f 2" interior 6¢ treat. g 3". h 8¢ treat. i 3 x 3½ x 8½.
ASPHALTS: a Price at plant, Everett, Mass. b F.o.b. refinery, Lockport, Ill. c F.o.b. Sugar Creek, Mo. d F.o.b. refinery, El Segunda. e F.o.b. Baton Rouge. f F.o.b. Wood River or Roxana, Ill. g F.o.b. Richmond, Calif. h F.o.b. Martinez. i Bulk refinery. j F.o.b. refinery, Inglewood, Calif. k 50-110 penetr. l Less than 100 penetr. m 40-80 penetr. n Tax incl. o Drums not avail. p Shipped in steel bbl. q 40-85 penetr. r In customer's drums. s Shipped in drums, per drum. t 85-300 penetr. u Per 100 gal. v Per ton. w Per gal. x Also tank trucks. y F.o.b. Oakland. z F.o.b. refinery Cleveland. A F.o.b. Latonia, Ky., 50-300 penetr.

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS billet	RIVETS ½-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	Light	Re-rolled	TRACK SUPPLIES Angle Bars	Std Spikes	Tie Plates	Track Bolts
Birmingham Area	$3.65	$3.70	$3.70	$7.85		$72.00	$80.00	Not	$4.70	$6.15	$4.50	....
Chicago Area	3.65	3.70	3.70	7.85	$4.45	72.00	80.00	avail-	4.70	6.15	4.50	....
Pittsburgh Area	3.65	3.70	3.70	7.85	4.45	72.00	80.00	able	4.70	6.15	4.50	$9.85
Buffalo Area	3.70	3.70	3.70	7.75	4.45	72.00	80.00	....	4.70	6.15	4.50	9.85
Cleveland	....	....	3.70	7.85	....	.....	.....	....	....	....	....	9.85
Youngstown Area	....	....	3.70	....	....	.....	.....	....	....	6.15	....	....
Geneva	3.65	3.70	....	....	....	.....	.....	....	....	....	....	....
Los Angeles	....	....	4.40	....	....	.....	.....	....	....	6.15	....	....
Pueblo	3.65	3.70	3.70	....	....	72.00	80.00	....	4.70	6.15	4.50	9.85

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS Per 100 lb., base price u 5 tons to carload lot b New billet	Rail steel	Add for switch	$/cwt for Del.	EXPANDED METAL LATH c Per 100 sq. yd., carload lots Std. diamond mesh, 3.4 lb.	Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING d Per 100 sq. ft., carload lots 4x16 in., No. 5 & 10 wires	4x12 in., No. 8 & 12 wires	6x6 in., No. 6 & 6 wires
Atlanta	$6.80	$6.65	$6.65	$.025	$.10	$31.50	$31.50			
Baltimore	6.15	5.49f	....	....	.10	42.00	45.00			
Birmingham	5.70	5.75	5.75	.05	.15	47.00p	52.00p			
Boston	6.20q	6.19	6.19	....	.15	40.50	44.50			
Chicago	5.70	4.95ff	4.95ff	.0625	....	33.50	37.50			
Cincinnati	6.24ak	5.84r	....	....	.15	38.50aee	41.00aee			
Cleveland	5.95	4.81r	....	....	.10	37.00‡	40.00‡			
Dallas	8.85	7.00	7.00	....	....	49.00	52.00			
Denver	7.20	7.10c	....	....	....	60.00e	72.00g,e			
Detroit	6.09	5.74n	....	....	.20	53.00	58.00			
Kansas City	6.30nn	5.90ff	....	....	....	39.50	41.50			
Los Angeles	6.41fAA	6.21o	....	....	.15	48.00	54.00kk			
Minneapolis	6.15AA	7.12ll	7.12ll	....	.30	37.00	39.50			
Montreal	6.55AB 6.75A	4.75i	4.75g	....	....	44.10A	46.80A			
New Orleans	....	5.55ok	....	.05	.10	40.00	40.00			
New York	6.50r	6.25	6.25	....	.30	38.50qt	45.00qt			
Philadelphia	5.90	5.95	....	....	....	38.00‡	42.00‡			
Pittsburgh	5.40/5.60	5.40/5.60	....	....	.10	34.00	36.00			
St. Louis	6.03a	5.34c	5.34c	....	....	47.00aa	53.00aa			
San Francisco	7.15ii	6.50l	....	....	.15	40.50	48.50			
Seattle	4.30e	5.55dl	....	....	....	57.00mm,z	47.00mm,z			

A.P.M.* Joliet, Illinois, Donora, Penn., $2.66
F.o.b. Mill: Monessen, Penn., $2.80

A.P.M.* Joliet, Illinois, Donora, Penn., $1.87
F.o.b. Mill: Monessen, Penn., $1.93

A.P.M.* Joliet, Illinois, Donora, Penn., $2.79
F.o.b. Mill: Monessen, Penn., $2.80

* At Producing Mill.

‡ Delivered. b 1-5 tons, add 35¢. Less than 1 ton, add 50¢. c 20 tons or over base. d Mill price plus freight. e F.o.b. plant. f Includes delivery in free delivery zone. g 10,000 to 39,999 lbs. h List price. Dominion tax exempt. Provincial and Municipal tax extra. i Plus Dominion, Provincial and Municipal sales tax. j Price per ton. k F.o.b. city. l Intermediate and hard grade, new billet. m Per sq.yd. n 5-10 tons. o 5 to 20 tons base. p Del. of 500 sq. yd. or more. q Std. ribbed, 4 lb. per sq. yd. r 5 tons or over. s LCL. t Asphalt coated. u Note: Revised size extra — 1 in., 1¼ in., 1½ in., 10¢. 2 in., 25¢. 2½ in., 50¢. 3 in. 80¢. 3½ in. $1.90. v 20 tons. Straight. w Copper bearing. x 2.5 lb. per sq. yd. y $0.0083 transportation tax included. z Copper alloy. aa Delivered truck to job. Contractor to do unloading. dd F.o.b. dock. ee F.o.b. cars. ff Carload lots. gg Including sales. hh 10,000-19,999 lbs. ii 400-999 lbs. kk 1" ribbed. ll 5 to 8 tons, f.o.b. city. mm 2% off for cash. nn 1-5 tons. ¶ 10 tons to CL. oo 2000-9999 lbs. A. Amer. struct'l shapes. B. Canadian shapes.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE Per net ton f.o.b. 6 in. to 24 in.a	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13-44T std. 8 in. s.s.	std. 12 in. s.s.	24 in. ds.	36 in. ds.	CLAY DRAIN TILE ASTM C4-24 Per 1,000 ft., carload lots, f.o.b. 6 in.	8 in.	CONCRETE SEWER PIPE Per ft., delivered: ASTMC 14-41 12 in.	24 in.
Atlanta	$99.00	$0.43	$0.67	$3.39aa	$7.00aa	$114.00	$140.00	$0.45	$2.00
Baltimore	109.00	.539	1.0395	4.234	11.275A	178.20	274.80	.90	2.45
Birmingham	93.00	.42	.75	2.99	....	210.00‡	375.00‡	1.25m	2.75m
Boston	113.00	.532uvx	1.08uvy	4.41uvy	11.685uvy	187.80z	289.20z	1.55mg	3.80mg
Chicago	107.00	.65	1.25	5.10	13.50	150.00‡	270.00‡	.80	2.80
Cincinnati	106.00	.567y	1.093y	4.32y	11.17y	164.40	254.10	.75m	2.80m
Cleveland	108.00	.462z	.89z	3.69z	10.045z	158.00m	245.65m	.75m	2.95m
Dallas	107.00	.436	.822	3.234b	9.176	.....	.....	.49	1.60
Denver	115.00	.434dd	.744dd	3.18dd	....	.....	.....	.74m	2.50m
Detroit	108.00	.70	1.35	5.35	14.40	240.00m	360.00m	.80	3.20
Kansas City	106.00	.515	.92	3.64	....	216.70	.....	.70g	3.00g
Los Angeles	122.00	.54f	1.07f	5.24f	13.06f	228.20f	348.90f	.85	2.40ff
Minneapolis*	112.00	.66mo	1.20mo	4.85mo	....	.....	.....	1.36A	3.87A
Montreal	100.00	.85z	1.50z	5.25z	....	.....	.....	1.17	3.11z
New Orleans	101.50	.498	.905	5.03	....	229.70bb	402.00bb	.65	2.29
New York	111.00	.62	1.19	4.73	12.40	.....	.....	1.15	2.50
Philadelphia	110.00	.65	1.25	4.95A	12.65A	300.00‡	350.00‡	1.55A	3.75A
Pittsburgh	109.00	.406m	.772m	2.85m	7.652m	147.00	230.00	1.05A	2.50A
St. Louis	103.00	.51	.93	3.65	8.58	160.00‡	300.00‡	1.20d	2.70d
San Francisco	122.00	.61d	1.20d	5.03d	12.57d	240.00f	400.00f	.95	3.20
Seattle	124.00	.51b	.91b	....	....	150.00e	....	.86e	2.56ee

‡ Delivered. a Class B & heavier. Based on existing freight rates; subject to rate change. Gas pipe and class A, $5 per ton additional. 4 in., $7 per ton additional. 30 in. and larger, usually, $1 per ton less. b Extra strength ASTM C 200-44T. c 4-in., $90. d SS361-A. e 30-in. f F.o.b. factory. g Culvert pipe. Reinforced, ASTM C76-41. h Reinforced, ASTM C75-41. i Reinforced, ASTM C76-37. j Centrispun. No. standard specifications in Can. l F.o.b. plant. m Truck delivery. n Listed price is based on LCL (no minimum). p Less than 5 tons, per price per ft. t Within switching limits. v ASTM C13-40. x C.L.f.o.b. origin, freight allowed. z 2 ft. lengths. bb 3 ft. lengths. z CESA A 60-1941 specifications used. aa *Extra strength ASTM C 200-50.* A standard strength. * 6" to 8", 1.60 per ft.; carlots, F.o.b. tract class 150. bb Freight allowed to destination in city. cc Truck loads; f.o.b. plant, Newton. dd LCL delivered, f.o.b. truck. ee 1% off for cash. ff 21.

*WROUGHT STEEL PIPE

Mill	(Full standard weight) Butt Weld, Galv. 3/8 to 6 in.	Butt Weld, Galv. 2 1/2 in.	Butt Weld, Black 2 1/2 in.	Butt Weld, Galv. 2 1/2 in.	Butt Weld, Black 2 1/2 in.
	%	%	%	%	%
Lorain, Ohio	43.5	43.5	43.5	21.0	43.5
Alhambra, Pa.	43.5	43.5	43.5	21.0	43.5
Sparrows Pt., Md.	41.5	42.5	42.5	22.0	43.5b
Benwood, W. Va.	43.5	43.5	43.5	21.0	43.5
Youngstown, O.	43.5	43.5	43.5	21.0	43.5
Indiana Harbor, Ind.	42.5	42.5	42.5	22.0	43.5b
Sharon, Pa.			43.5	21.0	43.5
Wheatland, Pa.			43.5	21.0	43.5
Ellwood City, Pa.			43.5b	23.0b	43.5b
Ellwood City, Pa.			43.5b	24

Straight-from-the-shoulder facts show you save in every way with

CHEVROLET *Advance-Design* TRUCKS

FACT No. 1

COSTS LESS TO BUY

Match a Chevrolet truck against any comparable truck capable of handling the same payloads. You'll find Chevrolet trucks *list for less*, yet bring you ruggedness, stamina and great features not found in the other truck.

FACT No. 2

SAVES MONEY ON THE JOB

Experienced truck operators know Chevrolet trucks cost least to own and maintain. Valve-in-Head economy, in the Chevrolet Loadmaster or Thriftmaster engines, saves on gas. Four-way engine lubrication reduces wear and oil costs. Rugged construction means long life.

FACT No. 3

RIGHT TRUCK FOR EVERY LOAD

Chevrolet trucks are *factory-matched* to your payload and service requirements. You don't buy "too much truck" or "too little truck." Frame, axles, springs, body, brakes and power are *balanced* for the job.

FACT No. 4

KEEPS ITS VALUE LONGER

Records show that Chevrolet trucks traditionally bring more money at resale or trade-in than many other makes. Chevrolet's market value stays up because the value stays *in!* More proof that Chevrolet is the best truck buy! See your Chevrolet dealer soon.

CHEVROLET ADVANCE-DESIGN TRUCK FEATURES

TWO GREAT VALVE-IN-HEAD ENGINES—Loadmaster or the Thriftmaster—to give you greater power per gallon, lower cost per load • POWER-JET CARBURETOR—for smooth, quick acceleration response • DIAPHRAGM SPRING CLUTCH—for easy-action engagement • SYNCHRO-MESH TRANSMISSION—for fast, smooth shifting • HYPOID REAR AXLE—for dependability and long life • TORQUE-ACTION BRAKES—on light-duty models • PROVED DEPENDABLE DOUBLE-ARTICULATED BRAKES—on medium-duty models • TWIN-ACTION REAR BRAKES—on heavy-duty models • DUAL-SHOE PARKING BRAKE—for greater holding ability on heavy-duty models • CAB SEAT—with double-deck springs for complete riding comfort • VENTI-PANES—for improved cab ventilation • WIDE-BASE WHEELS—for increased tire mileage • BALL-TYPE STEERING—for easier handling • UNIT-DESIGNED BODIES—for greater load protection • ADVANCE-DESIGN STYLING—for increased comfort and modern appearance.

CHEVROLET DIVISION OF GENERAL MOTORS, DETROIT 2, MICHIGAN

first in demand in value in sales

CHEVROLET

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F. O. B.

SHORT LEAF YELLOW PINE AND DOUGLAS FIR

All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)

All Fir boards, dimensions, planks No. 2. Fir small timbers and timbers are No. 1 Lengths up to 20 ft.

(Prices in italics)

	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 Rgh	6x12 Rgh	12x12 Rgh
Atlanta	† **$73.00**	**$76.00**	**$67.00**	**$69.00**	**$73.00**	**$76.00**	**$75.00**	.....	.....
Baltimore	* **90.00**	**93.00**	**75.00**	**80.00**	**80.00**	**90.00**	**95.00**	.....	.....
	105.00g	*105.00g*	*105.00g*	*105.00g*	*105.0g*	*105.00g*	*115.50*	*$124.80*	*$184.80*
Birmingham	† **83.00**	**83.00**	**70.00**	**80.00**	**83.00**	**85.00**	**95.00**	.....	.....
	85.00	*85.00*	*72.00*	*80.00*	*80.00*	*79.00*	*85.00*	*85.00*	*85.00*
Boston	**101.00a**	**107.00a**	**96.00a**	**98.00a**	**105.00a**	**113.00a**	.....	.....	.....
	§ *97.00*	*97.00*	*102.00*	*107.00*	*107.00*	*107.00*	*127.00*	*127.00*	*127.00*
Chicago	**100.00	**105.00**	**92.00**	**100.00**	**101/102**	**105/106**	**105.00**	.....	.....
	108.00	*104/105*	*104/105*	*108.00*	*108/110*	*108/110*	*110.00*	*110.00*	*110.00*
Cincinnati	* **99.00**	**102.00**	**84.00**	**92.00**	**96.00**	**98.00**	**118.00**	.....	.....
	109.00	*109.00*	*115.00*	*115.00*	*115.00*	*115.00*	*135.00*	*135.00*	*135.00*
Cleveland	** **94.50**	**96.00**	**83.00**	**97.00**	**97.00**	**98.00**	.....	.....	.....
			108.00	*105.00*	*105.00*	*106.50*	*126.00*	*126.00*	*126.00*
Dallas	‡† **78.00**	**80.00**	**69.00**	**58.00**	**59.00**	**59.00**	**98.00**	.....	.....
Denver	*	*Not in stock*		*151.00*	*150.00*	*148.00*	*157.00*	*145.00*	*146.00*
Detroit	‡ **106.00**	**110.00**	**100.00**	**108.00**	**112.00**	**113.00**	.....	.....	.....
	100.75	*101.75*	*108.75*	*106.50*	*105.50*	*104.00*	*120.00*	*120.00*	*120.00*
Kansas City	* **120.00**	**120.00**	**120.00**	**120.00**	**120.00**	**120.00**	.....	.....	.....
	120.00	*120.00*	*120.00*	*120.00*	*120.00*	*120.00*	*145.00*	*155.00*	*155.00*
Los Angeles	‡ *94.00*	*94.00*	*94.00*	*94.00*	*94.00*	*94.00*	*112.00*	*122.00*	*112.00*
Minneapolis	# *130.00*	*130.00*	*135.00*	*135.00*	*135.00*	*135.00*	*150.00*	*150.00*	*150.00*
Montreal	a$85.00	90.00	85.00	85.00	90.00	100.00	.....	.....	.....
	175.00	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	*170.00*
New Orleans	† **100.00**	**100.00**	**92.00**	**85.00**	**90.00**	**94.00**	**118.00**	.....	.....
	† *100.00*	*102.00*	*103.25*	*101.25*	*101.25*	*99.50*	*122.00*	*122.50*	*117.00*
New York	‡ **105/110**	**110/115**	**100/105**	**107as/112as**	**112as/117as**	**117as/122as**	**130/160**	.....	.....
			Range from $115.00 to $120.00				*155/150*	*145/150*	*145/150*
New York	** **93.00**	**96.00**	**80.00**	**92.00**	**96.00**	**99.00**	**128.00**	.....	.....
	97.00	*97.00*	*107.00*	*105.00*	*105.00*	*105.00*	*116.00*	*125.00*	*125.00*
Philadelphia			**Range from $114.00 to $127.00**				**114/127**	.....	.....
			Range from $125.00 to $150.00				*150/140*	*150.00*	*150.00*
Pittsburgh	†		**Range from $90.00 to $95.00**			**100/110**	**100/110**	.....	.....
			Range from $100.00 to $110.00			*110/120*	*110/120*	*140/155*	*145/155*
St. Louis	#c**116.00e**	**118.00e**	**104.00^{m}**	**127.00^{l}**	**110.00^{l}**	**121.00^{d}**	.....	.....	.....
	.....	.....	*121.00e*	*126.00e*	*126.00e*	*127.00e*	*160.00e*	*155.00*	*155.00*
San Francisco	A† *72.00*	*72.00*	*76.00*	*75.00*	*75.00*	*74.00*	*81.00*	*84.00*	*83.00*
Seattle	† *77.50g*	*77.50g*	*77.50g*	*77.50g*	*77.50g*	*77.50g*	*77.50g*	*77.50g*	*77.50g*

	6x12 Rgh	12x12 Rgh
Atlanta	.....	.....
Baltimore	.....	.....
Birmingham	.....	.....
Boston	.....	.....
Chicago	.....	.....
Cincinnati	.....	.....
Cleveland	.....	.....
Dallas	.....	.....
Denver	.....	.....
Detroit	.....	.....
Kansas City	.....	.....
Los Angeles	.....	.....
Minneapolis	.....	.....
Montreal	.....	.....
New Orleans	.....	.....
New York	.....	.....
New York	.....	.....
Philadelphia	.....	.....
Pittsburgh	.....	.....
St. Louis	.....	.....
San Francisco	.....	.....
Seattle	.....	.....

LONG LEAF Y. P. Merchantable grade up to 20 ft.

	2x12 Rgh	12x12 Rgh
Atlanta		
Baltimore	**$148.00**	**$148.00**
Birmingham	**115.00**	**150.00**
Boston	.....	.....
Chicago	**134.00**	**134.00**
Cincinnati	**135.00**	**135.00**
Cleveland	.....	.....
Dallas	**108.00**	**98.00**
Denver	.....	.....
Detroit	.....	.....
Kansas City	.....	.....
Los Angeles	.....	.....
Minneapolis	.....	.....
Montreal	.....	.....
New Orleans	**148.00**	**140.00**
New York	**210/240**	**210/240**
New York	.....	.....
Philadelphia	**200/210**	**200/210**
Pittsburgh	**100/110**	**115/125**
St. Louis	.....	.....
San Francisco	.....	.....
Seattle	.....	.....

PLYWOOD Rail freight increment (See note for base price)

	¾"	¾"
Atlanta	**$22.32**	**$27.24**
Baltimore	22.86	27.90
Birmingham	21.78	26.58
Boston	22.86	27.90
Chicago	18.72	22.80
Cincinnati	21.78	26.58
Cleveland	22.20	27.12
Dallas	18.72	22.80
Denver	13.92	16.98
Detroit	21.78	26.58
Kansas City	16.56	20.16
Los Angeles	13.38*ab*	16.26*ab*
Minneapolis	16.56	20.16
Montreal	.....	.....
New Orleans	18.72	22.80
New York	.....	.....
New York	.....	.....
Philadelphia	22.86	27.90
Pittsburgh	.....	.....
St. Louis	18.72	22.80
San Francisco	10.08a	12.30a
Seattle	.....	.....

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. ‡ Deliv. to contr. CL. 1. Retail, LCL, at yard. # Retail, LCL, deliv. 2. Deliv. truck lots. 3. asd.

LUMBER: **Bold Face type, Southern Pine.** *Italics, Douglas Fir.* *a* Spruce *b* Tax exempt. *c* 5M lots. *d* 8–12 ft. lengths. *e* 8–16 ft. lengths. *f* 18 ft. or under. *g* No. 1 common. *h* 8 ft. lengths. *k* No. 3 common. *l* 8–10 ft. lengths. *m* 12 ft. lengths.

A Rail freight rate from Northwest mills to San Francisco are $11.50 to $15.00 per M ft bm. From Northern Calif. mills $9.00 by rail $12.00 by truck to yard with surfaced stock $2.00 to $3.00 less.

PLYWOOD: Plyform grade Fir Plywood, 4' by 8' panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on 1", $176.00; on 1", $201.00. Exterior concrete form ¾" $196.00, ¾" $223.00. For other centers add rail freight increment from table on proper size. Oiling and edge sealing charges included. *a* Lower rate by water shipment. *b* 86,000 lb. minimum.

* Freight rate increase of 6¢ per cwt., not included in these figures.

GLASS, EXPLOSIVES, CHEMICALS

	WINDOW GLASS — Discounts from jobbers list, Feb. 1, 1950*a* Single or Double Thickness A quality	WINDOW GLASS — B quality	EXPLOSIVES — Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*
Atlanta	79%	80%	$0.2315
Baltimore	70–10%	78–10%	.2315
Birmingham	83%	83%	.1790
Boston	79–10%	79–10%	.2315
Chicago	78%	78%	.2315
Cincinnati	78%	78%	.2315
Cleveland	78–10–10%*f*	78–10–10*f*	.2715
Dallas	75%	75%	.2390
Denver	81–5%	81–5%	.2365
Detroit	78–10–10%	78–10–10%	.2315
Kansas City	80–10%	80–10%	.2365
Los Angeles	75%	80%	.2340
Minneapolis	78–10%	78–10%	.2365
Montreal	40–5%*bc*	40–10–5	21.60*As*
New Orleans	78%	77%	.2365
New York	82–10%	82–10%	.3975*g*
Philadelphia	76%	78%	.2315
Pittsburgh	82%	82%	.2040
St. Louis	80–10%	80–10%	.2365
San Francisco	70%	70%	.2315
Seattle	75%	78%	.2340

Price of 60% Ammonia Gelatin is $0.0125 per lb. higher than 40%

Glass; a Jobbers' list price per box, 14 x 20, ss, $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. *b* Discount from list, Apr. 1951; sales tax included, but 6% tax exemption not allowable for. *c* Single thickness. *f* Disc from Oct. 1950

Explosives; * Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. *g* In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $20.00 per ton lb. forcite, 40%. Forcite 60%, $23.35. *t* F.o.b. Beloeil (near Montreal).

40% Ammonia Gelatin price ranges in other than urban areas, per lb. (except Seismograph Grades)

	C/L 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me. W. of Miss. to Rocky Mtn. States	$0.179	$0.2115	$0.2315
Fla. and Maine	.184 – .1915	.2165– .224	.2365– .244
Rocky Mtn. States	.184 – .1965	.2165– .224	.2365– .249
Pacific N. W. States	.1815– .194	.214 – .2265	.234 – .2465
Pacific S. W. States	.179 – .1865	.2115– .214	.2315– .2365

PILES, TIES F. O. B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail Pine*	By Rail Fir
12-in. at butt	6-in.	30 to 50-ft.	$0.43	....
12-in. — 2-ft. from butt	6-in.	50 to 59-ft.	.46	....
12-in. — 2-ft. from butt	6-in.	60 to 69-ft.	.50	....
12-in. — 2-ft. from butt	6-in.	90 to 100-ft.	....	....
13-in. — 3-ft. from butt	5-in.	91 to 100-ft.	....	....
14-in. — 2-ft. from butt	6-in.	50 to 69-ft.	.50/.60	....
14-in. — 2-ft. from butt	6-in.	70 to 79-ft.	.70/.75	.85
14-in. — 2-ft. from butt	5-in.	80 to 85-ft.	.75/.85	.86
14-in. — 2-ft. from butt	5-in.	85 to 89-ft.	....	.92
14-in. — 2-ft. from butt	5-in.	90 to 100-ft.	....	.94

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

Prices f.o.b. per tie for carload lots:		6"x8"x8' Untr.	6"x8"x8' Tr.	7"x9"x8'6" Untr.	7"x9"x8'6" Tr.
Boston	Oak§	....	....	....	....
	Pine§	....	....	....	....
New York	S. L. Sap Pine	$2.10	$3.90	$3.00	$5.00
	Mixed Oak	2.65	4.20	3.25	5.50
Birmingham	Hardwood	2.40	3.88*a*	2.85	4.58*a*
Chicago	Red Oak	...	4.00*a*	....	5.00*a*
Los Angeles	Douglas Fir	....	....	....	....
	Redwood	....	....	....	....
Philadelphia	Red Oak	2.60	3.95	3.45	5.10
St. Louis	White Oak	2.94	....	3.65	....
	Red Oak	2.84	3.49*a*	3.52	4.51*a*
	Sap Pine or Cypress	3.31*a*	....	4.27	....
San Francisco	Douglas Fir	2.20*e*	3.25*ef*	2.92*bf*	4.30*ecf*
Montreal	Birch or Maple	....*h*	....*h*	....*h*	....*h*

Tr.—Treated; Untr.—Untreated. *a* Creosoted. *b* 7" x 9" x 8'. *c* Empty cell. *e* Green. *f* F.o.b. cars. *h* No constant price available. *t* Not available.

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb.	$6.00
Chlorine cylinders, liquid, per lb. f.o.b. works	.0875
Calcium chloride, 77–80%, flaked, 100-lb. paper bag, f.o.b. works, ton	25.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb.	2.20
Soda ash, 58%, in paper bags, per 100 lb. dense	1.60
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1.65
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	8.95

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION — SCORED [1] Per M. lots of 2,000 pieces or over, 3x12x12 in.	4x12x12 in.	8x12x12 in.	STRUCTURAL CLAY TILE — LOAD BEARING — SCORED Per M. lots of 2,000 pieces or over, 8x12x12 in.	10x12x12 in.	12x12x12 in.	BRICK Per M. in quantity Common backing	Straight hard	LIME Per ton, In paper, Carload lot, Hydrated finishing	Common hydrated	Pulverized, or lump
Atlanta	$195.00	$207.50	$247.50	$327.00	$342.00	$381.50	$27.78 [1]	$27.78	$19.00	$17.50	$17.50
Baltimore	183.00	195.00	366.00	415.00	541.00	618.00	36.00*k*	41.00*k*	30.00	21.00	.....
Birmingham	118.00*p*	128.00*p*	236.00*p*	283.00*p*	.....	.....	23.50*ff*	28.50*gg*	26.37	17.10	.. "
Boston	196.00†	209.00†	392.00†	383.25†	.....	.....	34.50*p*	37.50*n*	30.00†	28.00†	.. "
Chicago	135.00	145.00	280.00	... ..	.....	... ..	23.00	25.00	30.80	26.00	....
Cincinnati	185.00*j*	195.00*j*	340.00*jdd*	.....	.....	.....	34.50*j*	46.00*j*	26.37*j*	24.62*j*	.....
Cleveland	172.00**	183.00**	.....	.....	.....	.....	32.00	32.00	25.50	23.50	31.00*ee*
Dallas	.....	118.00	.....	.....	... ..	... ..	19.75	35.25	32.00	21.80	.....
Denver	.....	.....	.....	.....	.....	.....	34.00	40.00	34.80*bb*	28.00*bb*	34.00*bb*
Detroit	127.75	136.25	255.55	.....	317.25	362.60	34.90*cc*	33.30*cc*	32.00	30.00	.....
Kansas City	115.50	122.50	245.00	245.00	303.50	367.00	26.00	26.00	30.50	24.50	27.00
Los Angeles	*r*	*r*	*r*	*r*	*r*	*r*	21.00§	.....	34.00	34.00	35.00
Minneapolis	171.50*p*	192.50*p*	386.00*p*	192.50*wp*	.....	.....	32.00*np*	36.00	37.00*bbc*	28.00*bbc*	38.00*bbde*
Montreal	150.00*nq*	162.50*nn*	300.00*nn*	.....	.....	.....	31.00	41.50	34.80	32.50	24.60*n*
New Orleans	170.00	170.00	310.00	380.00	.....	.....	31.00	.....	.....	20.00	20.00
New York	138.70*h*	147.90*h*	203.40*ch*	221.90*hn*	.....	.....	38.50	.....	38.00	32.00	.....
Philadelphia	126.30	134.80	252.60	302.74	361.35	455.74	29.00	32.00	36.00	21.50	.....
Pittsburgh	112.00	117.00	189.00	216.00	279.00	317.00	32.00	42.00*y*	25.00	23.00	2.97*m*
St. Louis	138.00*cc*	158.50*cc*	313.00*cc*	.....	351.00*cc*	.....	40.00*nl*	36.25*s*	.85*aaa*	.65*aaa*	1.10*aaspes*
San Francisco	156.85*a*	177.10*a*	235.30*ddda*	.....	.....	.....	37.00	.....	26.60	26.60	2.65*m*
Seattle	175.00*cc*	190.00*cc*	.....	190.00*ccw*	.....	.....	39.00*s*	49.00*s*	37.50*ahh*	1.45*ff*	3.90*mhh*

† F.o.b. yard Roxbury. *a* Smooth. *b* Per 50 lb. bags. *c* 6 x 12 x 12 in.-3 cell. *d* Pulverized hot. *e* 5% 10th following month. *g* 5¼ x 8 x 12. *h* F.o.b. trucks, job site N.Y.C. *j* Truck load or over. *k* $1.00 discount *l* Red face. *m* Per bbl., 180 lb. *n* 7¼ x 7¼ x 12. Speed title. *p* Truck lots. *q* Provincial and Municipal tax extra. *r* Not used because of earthquake danger. *s* 2% discount for cash. *t* 5½ x 8 x 11¼. *u* Tax exempt. *v* Sand lime. *w* 5 x 8 x 12. *y* Stacked. *z* Pebble lime price per 80 lb. sack. *aa* Price per sack. Lime not sold per ton. *bb* LCL. *cc* Truck delivery. *dd* 6 x 12 x 12. *ee* Pebble lime. 80% common. *gg* Select. *hh* LCL. § F.o.b. yard. *ff* Per 60 lb. sack, no incr., ton price no longer quoted. ** Only 1 plant producing quotes on warehouse delivery, previous quotes were truck delivery. * F.o.b. Stockton.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 600-lb. (Approx.) bbl. Dry *a*	WHITE LEAD Per 100 lb. in 100 lb. cases in oil *w*	READY-MIXED PAINT Per gal., drums Graphite *b*	Aluminum *c*	Ferric Oxide *d*	ROOFING SUPPLIES Carload lots f.o.b. factory Rolls, slate surfaced, 85-90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 360 lb. bbl. per ton
Atlanta	$21.80	$32.925	$1.75	$2.70	$1.65	$2.06‡	$2.06‡	$2.06‡	$1.00‡	$36.00‡
Baltimore	21.55	32.55	2.65	4.10	3.22	2.50	4.17	4.17	.42	37.00
Birmingham	21.80	32.925	3.90	3.40	.....	2.80	2.75	2.75	.....	40.50*ee*
Boston	21.55	32.55	.....	.....	.....	2.67*gg*	2.56*gg*	2.56*gg*	.42*g*	42.00*g*
Chicago	21.55	32.55	.....	.....	.....	2.73‡*u*	3.04‡*o*	3.04‡*o*	38.00‡*bbr*	43.00‡
Cincinnati	21.55	32.55	.....	.....	.....	2.30	2.30	2.30	.42*y*	42.36
Cleveland	21.55	32.55	2.70*pqqA*	3.40*qqB*	2.80*qqC*	2.30‡*q*	2.30‡*o*	2.30‡*o*	.36‡*y*	40.00‡*kk*
Dallas	21.80	33.30	.....	4.05	.....	3.50*q*	3.75*o*	4.35*o*	.36	46.00
Denver	22.05	33.05	3.07	5.15	2.87	3.25*o*	2.40*o*	2.40*o*	.43*ff*	42.00
Detroit	21.55	32.55	2.35	3.40	2.50	2.30	2.70*f*	2.30	.51	40.00
Kansas City	21.55	32.67	.....	2.71*ys*	2.65	2.50	2.50*o*	2.50*o*	.313	48.00
Los Angeles	21.55	32.80	3.30	4.50	4.20	2.97	2.01*e*	*l*	.44	*l*
Minneapolis	21.55	28.55/32.67	.....	.....	.....	2.30*hidd*	2.30*hidd*	2.34*idd*	.34*idd*	37.00*r*
Montreal	.....	20.70	4.00	4.90	5.20	3.80*t*	3.85*tf*	3.85*tf*	3.00*kt*	3.15*kt*
New York	21.55	32.55	3.45*y*	.....	.....	2.30	2.30*o*	2.30*o*	.34*z*	37.00
Philadelphia	21.55	32.55	3.25	3.65	3.15	2.54	2.94	2.94	.37	26.00
Pittsburgh	21.55	32.55	2.65	2.65	3.15	2.40	2.81*o*	2.81*o*	.39	42.00
St. Louis	21.55	32.55	.....	.....	.....	2.15	2.30*h*	2.30*h*	.32*y*	38.00
San Francisco	21.55	32.80	2.40	.....	3.40	2.95	4.00*aa*	.....	.49	.....
Seattle	21.55	33.05	2.96*m*	2.80*m*	.....	3.58*mqcc*	3.05*hmcc*	.....	.59*mcc*	52.00*jmcc*

‡ Delivered. Note: Red lead in oil 50c higher than white lead in oil. *a* Red lead prices change frequently due to pig lead price changes. *b* U. S. War Dept. Spec. 3-49A. *c* ASTM Spec. D266-31. *d* 80% minimum ferric oxide. *e* 15 lb. *f* Per 432 sq. ft. *g* F.o.b. yard, Roxbury. *h* Per roll. 65 lb. *i* Net carload lot prices; Minneapolis and vicinity. *j* Asphalt pitch. *k* Per cwt. *l* Not used. *m* 1% discount for cash. *n* Per 60-lb. *o* 6-drum. *q* Per 90-lb. roll. *r* F.o.b. factory chicago. *s* 466 Med. *t* Federal tax included. *u* Per 90 lb. square. *v* Per ton. *w* Price to large paint contractors is $1.25 less. *x* Mineral surfaced. *y* 55-gallon container. *z* Drums. *aa* Approximate cost per 100 lbs. *bb* Roofers coating and cement. Price per ton. *cc* LCL, truck delivery. *dd* 2% cash discount. *ee* Asphalt, in 100 lb. package. *ff* 5-gal drums. *gg* F.o.b. factory. *hh* Incl. freight. *A.* TTP 27. *B.* TTA 468A. *C.* TTP 31A.

SKILLED AND COMMON WAGE RATES—PER HOUR

	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Common Labor Building	Common Labor Heavy Const.
Atlanta	$2.75	$2.20	$2.335	$2.25	$2.75	$2.60	$2.75	$1.05	$1.05
Baltimore	3.20*c*	2.58	2.90	2.85/3.00	2.75	2.75	2.65	1.40	1.40
Birmingham	2.75	2.125	2.50	2.06	2.42	2.80	2.65	1.10	1.20
Boston	2.888	2.475	2.75	2.80	2.97	2.80	2.665	1.815	1.815
Chicago	3.25*k*	2.70	2.80	2.65	2.96*n*	2.91*n*	2.75	2.05*m*	2.05*m*
Cincinnati	2.90	2.475	2.665	1.825/2.85	2.75	2.70	2.64	1.65	1.65
Cleveland	3.00	2.825*d*	2.825*e*	2.875	2.97	2.825*e*	2.97	2.275	2.275
Dallas	3.4375†	2.3375	2.50	2.475	3.437†	2.625	2.6125	1.20	1.35
Denver	3.00	2.35	2.35	2.48	3.00	2.65	2.65	1.575	1.575
Detroit	2.85	2.75	2.95*m*	2.80	3.005*l*	2.85	2.75*m*	2.00	2.00
Kansas City	3.50	2.365	2.53	2.365/2.61	3.025	2.66	2.75	1.73	1.73
Los Angeles	3.00*w*	2.35*w*	2.70	2.30*w*	3.125*w*	2.625*w*	2.625*w*	1.75*w*	1.75*w*
Minneapolis	2.90	2.40	2.57	2.35	2.75	2.71*n*	2.55	1.67	1.67
New Orleans	2.70	2.06	2.45	2.325	2.375	2.50	2.45	1.10	1.10
New York	3.548*r*	3.096*n*	3.345*n*	3.34*n*	3.599*nr*	3.597*as*	3.2866*p*	1.90	1.90
Philadelphia	3.464	2.65	3.14*p*	3.00/3.15*p*	3.075*k*	3.28/3.53*u*	2.85*n*	1.60	1.90
Pittsburgh	3.25	2.75	2.75	2.825	2.75	2.75	2.80	1.70	1.70
St. Louis	3.06*c*	2.775*h*	2.75	2.80	3.00	2.865*c*	3.00	1.85	1.85
San Francisco	3.256	2.45	2.70	2.41	3.125	2.75	2.75	1.70	1.70
Seattle	3.30	2.51	2.71	2.64	3.00	2.65	2.75	2.11	2.14
Montreal*	1.75	1.55	1.65	1.45	1.75	1.65	1.70	1.15	1.15

a 6 hr. day. *b* 7 hr. day. *c* Incl. 3% vacation stamp fund for bricklayers; 4% for electricans plus 1% N.P. * Cost of living bonus now included in basic wage. *e* Includes 5¢ per hr. tool replacement. † Plus $5.00 daily bonus. *h* $2.45 homes and housing + 5¢ vacation fund. *i* Incl. 3½% welfare. *j* Incl. 9¢/hr. welfare. *k* Incl. 7½ ¢ hr. welfare fund. *l* Incl. 4% vacation fund. *m* Incl. 5¢/hr. welfare ins. fund. *n* Incl. 6¢/hr. welfare fund. *o* Inc.. 3% welfare fund. *p* Incl. 5% welfare fund and 3% pension fund. *r* Incl. 3% welfare fund and 20¢ pension fund. *s* Incl. 5% welfare and pension fund and 4 % vacation fund. *u* Incl. 1% welfare fund. *v* Incl. 10¢ welfare fund. *w* Negotiating as we go to press.

MEXICO CITY PRICES

In Pesos, F.o.b. City		Feb.'52	Mar.'52
Common Wages—Building (8 hr. day)	av. per hr.	.83*	.83*
Common Wages—Heavy Const. (8 hr. day)	av. per hr.	.93*	.93*
Skilled Labor Wages			
Carpenters (8 hr. day)	av. per hr.	2.25*	2.25*
Bricklayers (8 hr. day)	av. per hr.	2.25*	2.25*
Struct. Iron Workers (8 hr. day)	av. per hr.	1.25*	1.25*
Struct. Steel Shapes			
3"-15" x 12 meters	per metric ton	1,111.01	1111.01
Reinf. Steel, Corr. Rods			
⅜" x 11 meters	per ton	1,261.51	1261.51
½" x 11 meters	per ton	1,251.13	1251.13
⅝" x 11 meters	per ton	1,240.75	1240.75
¾" x 11 meters	per ton	1,230.37	1230.37
⅞" x 11 meters	per ton	1,230.37	1230.37
1" x 11 meters	per ton	1,230.37	1230.37
Gravel truck load of 3½ cu. meters			
Blue Gravel	per tr. load	45.00	45.00
Rose Gravel	per tr. load	41.00	41.00
Cement, Std. Port. (Tolteca)	per ton	155.00	155.00
Lumber			
Mex. Sacred Fir (OYAMEL)	per M ft.	800.00	800.00
1st Class Pine	per M ft.	1200.00	1200.00
2nd Class Pine	per M ft.	980.00	980.00

* Increase by 1/6th—work 6 days, paid for 7 days.

ENR Skilled Average: (Bricklayers, Carpenters, Ironworkers): $2.714. **ENR Common Average:** $1.680.

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SEVERAL ENGINEERS in office of consultant on sanitary projects, experienced in this or related fields such as structural or hydraulic. Permanent positions intended. Full information, references and salary requirement requested. Location, Ohio. P-3784, Engineering News-Record.

WANTED—CIVIL Engineer for building construction with General Contractor in Ohio. Sizeable operations. Permanent connection for man with ability and initiative. State age, education, experience and salary expected. P-3879, Engineering News-Record.

WANTED—CIVIL Engineer graduate, some experience in high way construction with basic knowledge of soils and application to pavements required for laboratory and field tests, by long established engineering promotional and educational organization for work in New York, New Jersey, and Connecticut. Age 25 to 40. Give resume of education, engineering experience and salary requirements in reply. P-3841, Engineering News-Record.

WANTED—COMPETENT Superintendent. Experienced to supervise hospital or school construction. Age 52-59. State qualifications. P-3876, Engineering News-Record.

WANTED: RECENT graduate Civil Engineer for work in City Engineering Department, eastern Wisconsin City of 30,000 population. Salary from $3000 to $3480 per year. Apply by letter, stating qualifications. Enclose recent photograph. P-3277, Engineering News-Record.

WELLPOINT SUPERVISOR. So. Chicago area, union man preferred, some mechanical experience, permanent position. Write P-3854, Engineering News-Record.

SELLING OPPORTUNITY OFFERED

MANUFACTURER OF Chain Link Fences desires additional Sales Outlets from Eastern Seaboard West to Mississippi River. Write qualifications and other companies you represent. RW-3839, Engineering News-Record.

EMPLOYMENT SERVICE

ENGINEERS NEEDED in all fields at all levels. Salaries commensurate with experience & ability. Highly confidential service. Bring or m. il 3 resumes to: Position Securing Bureau Inc. (Agency), 45 John St., N. Y. 38, N. Y.

WANTED
MECHANICAL ENGINEER

Established consulting firm, New York area, desires Mechanical Engineer, capable supervising starting, testing, operating and correcting troubles of steam-electric station equipment. Plant betterment work involving considerable travelling. Technical education, and plant operating or betterment experience required. State education, experience and salary desired.

P-3630, Engineering News-Record
330 W. 42nd St., New York 36, N. Y.

WANTED
CITY ADMINISTRATOR

City of San Carlos, Calif.
(Pop. approx. 16,000) invites applications

Salary open depending upon the experience and qualifications of man selected. City Administrator experience preferred. Contact City Clerk, City Hall, San Carlos, California, for application and qualifications. Closing date for receipt of applications closes May 31st.

—ENGINEERS WANTED—

Civil, electrical, mechanical and structural engineers for design, construction and operation of electric power projects and irrigation projects in Puerto Rico—recent graduates, salary commensurate with experience. Positions carry liberal vacation leave, sick leave, retirement benefits and merit increases for satisfactory service. Opportunity for learning Spanish and for extending experience in design and construction on dams, canals, tunnels, highways, bridges, power plants and other engineering structures.

PUERTO RICO
WATER RESOURCES AUTHORITY
Box 4267, San Juan, Puerto Rico

WANTED
COST ENGINEER

Experienced construction Cost Engineer needed for work on large steam-electric station construction projects. Location . . . south or southwest. Submit resume of experience, education and salary desired.

Box **P-3629**, Engineering News-Record
330 W. 42nd St., New York 36, N. Y.

BUILDING CONSTRUCTION ESTIMATOR WANTED

Permanent position open with long established firm of engineers and builders doing business with nationally known industries. Must be ambitious, high-grade man, age 35-45, now employed, and thoroughly familiar with large industrial building estimating and pricing. Salary commensurate with his ability to assume responsibility. Ample opportunity for right man to advance with company. Write or wire complete details.

P-3862, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

PERSONNEL WANTED

National home builder, presently constructing large tracts of homes in Arizona, Ohio, Colorado and New Mexico, desires to hire well qualified men to head up its various departments. All applicants selected will have their headquarters in Phoenix, Arizona, and will supervise and coordinate their respective field departments. There will be considerable travel involved on all positions until the department heads have their work well organized. This work presents a challenging opportunity with a new and fast growing organization. Please submit your resume of experience and past earnings record in detail.

GENERAL CONSTRUCTION SUPERINTENDENT must have experience in large tract residential construction and be able to supervise tract superintendents. Executive experience and ability to coordinate work with engineering department are highly desirable.

CHIEF ENGINEER must have experience in developing raw land for tract development. Will supervise field engineers in preparation of tract layout plans, involving streets, lots and park areas. Setting grades for sewers, streets and houses. Supervisory experience and ability to oversee all tract work in progress and contemplated, is essential. Must be graduate civil engineer.

CHIEF STOREKEEPER must have experience in all aspects of warehousing, receiving and issuing construction material. Also have had experience in administering warehouses at various locations. Will be required to supervise stock clerks, receiving clerks and issue clerks at all tracts now under construction.

SUBCONTRACT OFFICER must have experience in letting subcontract work in all phases of work related to residence construction. Will be required to set up and administer all subcontractors contracts at the various tracts. In the main this involves painting, electrical, plumbing, ceramic and asphalt tile, glazing, sewer and water, paving, sheet metal roofing and heating.

CHIEF PURCHASING AGENT must have experience in organizing and administering purchases of construction materials. Will administer and originate purchase orders and contracts for materials. Will be required to schedule materials to meet construction programs at all tracts. Will supervise local purchasing agents who purchase minor amounts of materials locally at each tract.

ARCHITECT must have experience in the design of housing to be produced at the site on a mass production basis. Must be capable of producing plans, specifications and bills of material for such construction. Extensive experience in development work approximating six to twelve houses per day will be required for this position.

LABOR RELATIONS AND PROCUREMENT OFFICER. Must have experience in handling all union contracts with various construction crafts, settling differences with locals as they arise. Be capable of arranging for and obtaining the necessary union labor for new construction at various points in the United States.

F & S CONSTRUCTION COMPANY, INC.
1800 West Bethany Home Road
Phoenix, Arizona

Permanent Positions Open to ENGINEERS

. . . after training at
full-time pay . . . as
Consultants in
Fire Protection Engineering

to top U. S. and Canadian industry. Usual pension and other benefits. Excellent opportunities; fast-growing engineering organization.

Write complete qualifications to:
P-2807, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

DISTRICT REPRESENTATIVE

To travel central states; replacement and repair parts for earth moving equipment through dealers; must have car. Salary, expenses and bonus. Must have successful record. Write fully, age, experience.

Box **RW-3741**, Engineering News-Record
330 W. 42nd St., New York 36, N. Y.

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. *Forty-first year. Write today.*
WILSON *Engineering Corp.*
College House Offices - HARVARD SQUARE, CAMBRIDGE, MASS.

CONSTRUCTION MANAGEMENT
Superintendents and Project Managers Training Course
All instruction by mail. Send today for sample lesson and complete details
GEO. E. DEATHERAGE & SON
5 E. Preston St. Baltimore 2, Maryland

PUBLIC AUCTION SALE

MODERN AGRICULTURAL & INDUSTRIAL LIMESTONE MACHINERY ALL MACHINES INDIVIDUALLY MOTOR DRIVEN

FORMER DOVER PLAINS LIMESTONE CO., DOVER PLAINS, N. Y. 70 mi. NORTH OF NEW YORK CITY).

AUCTION STARTS
THURSDAY, APRIL 24
AT 11:00 A.M.

CRUSHERS, ROTARY DRYERS, ROTARY SCREENS, VIBRATING SCREENS, HAMMER-MILLS, BALL MILLS, SCREW CONVEYORS, BELT CONVEYORS, BUCKET ELEVATORS, MAGNETIC PULLEYS, STEEL BINS, MISCELLANEOUS SUPPLIES, CONVEYORS, TANKS, STARTERS, MOTORS UP TO 100 HP, ETC.

INSPECTION: APRIL 22 & 23. PHONE, WIRE, WRITE FOR CIRCULAR

BERNARD MAGRILL, Auctioneer
194 Broadway Brooklyn 11, N. Y.
STag 2-4574-5

FOR SALE
HEAVY CONSTRUCTION CONTRACTOR'S BUSINESS—TEXAS
Equipped for inland marine construction all kinds, pile-driving, foundations, earthwork. Available with or without office, warehouse, and yard. Could include nucleus of personnel.
Fulton Construction Company
P.O. Box 13197, Houston 19, Texas.

WANTED
Used Heavy Duty Rapid Pavement Breaker
Please give full detail first letter as to Truck, Compressor, and Breaking End.
W-3618, Engineering News-Record
330 W. 42nd St., New York 36, N. Y.

WANTED
Ten Ton Asphalt Plant, four compartment bin, complete. Give in detail condition, age, location, and best price loaded on cars.
VALLEY ASPHALT CORPORATION
P. O. Box 254 Newtown, Ohio

WANTED
Hydraulic or cable dozer blade
for wide gauge TD14.
Hydraulic dozer
for wide gauge Caterpillar D4
VAN D. YETTER, JR.
East Stroudsburg, Pa. RD#2

WANTED
1 Lima Paymaster
Type 34, Wide Pads, Long Crawlers, 50 ft. Boom; Must be in Good Condition; Priced Right.
M. B. BAUBACH
5017 Newfield Ave., Cincinnati 37, Ohio
Phone REdwood 3875 or 4020

POSITIONS WANTED

ACCOUNTANT-OFFICE Manager experienced in field and home office affairs; financial and cost accounting; timekeeping, payroll, payroll taxes, store keeping; Federal and State Taxes; administration of Government CPFF contracts. General and heavy construction. L. D. Pearson, 229 S. Center St., Bensenville, Ill. Telephone Bensenville 863.

PROJECT MANAGER

PROJECT MANAGER. General Construction Superintendent. Good organizer. Twenty-five years experience in heavy industrial construction, power plants, process installations, water treating plants, etc. Available two weeks notice.

PW-3827, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

POSITIONS WANTED

ACCOUNTING EXECUTIVE, seeks key accounting position with general contractor, 22 years experience in all phases of construction accounting and office management in Main Office and Field. Prefer permanent location. Good clean record. PW-3644, Engineering News-Record.

ASSOCIATE MEMBER A.S.C.E. Registered. 25 years experience in general construction, includes complete office routine and charge of field operations. Let contracts, purchased materials Co-ordinate subs, architect, owner and F.H.A. Desires position where achievements are recognized. Location New England. Available April 15. PW-3878, Engineering News-Record.

BRIDGE SUPERINTENDENT desires new connection. Available 30 days. 22 years experience. Age 40. PW-3886, Engineering News-Record.

CARPENTER SUPT. 20 years experience, 7 yrs. foreign. Reinforced concrete & truss. Can expedite work. References Excellent. PW-3866, Engineering News-Record.

CHIEF ESTIMATOR—Estimator all types of Building Construction, 25 years experience all Building Trades, Quantity Survey, Pricing, Job Costs, Construction Methods and Analyzation desires interview for permanent position. PW-3855, Engineering News-Record.

CIVIL ENGINEER: Contractor-Engineer representative or supervising engineer. Registered P.E. N.Y. Broad field and office experience. General construction, airports, highways, municipal and major defense projects. Reports. Twenty years on responsible assignments covering Latin America, West Indies, Pacific and Far East Area. Fluent Spanish. Prefer south or foreign. Responsible and executive. Age 61. Personal interview suggested. Presently located N. Y. City. PW-3889, Engineering News-Record.

CIVIL ENGINEER, Graduate, registered, age 49, 22 yrs. varied experience; highway design and location, railroad layout and construction; post engr.; airfields, construction engineer for contractors; presently employed in responsible position; executive ability. Desires change in near future. PW-3763, Engineering News-Record.

CIVIL ENGINEER: Graduate with Masters Degree. Member A.S.C.E., Member N.S.P.E. Registered Professional Engineer: Ohio, New York, Maryland, Michigan. Twenty years experience in preliminary surveys, soil surveys, foundation investigations, location, design, construction and maintenance of highways, bridges, airports, dams, industrial and commercial buildings. Six years foreign service in England, Africa, Italy, Greece, Ceylon and Turkey. Available May 1st. Foreign or Domestic. PW-3659, Engineering News-Record.

CIVIL ENGINEER, graduate 1941, age 33, married Lic. Professional Engineer & Land Surveyor in N. J., employed. Varied experience as job engineer on industrial bldgs., chemical plant, and power house construction plus experience on general construction. Know office and field including layout, takeoff, costs, supervision. Available upon two weeks notice. PW-3805, Engineering News-Record.

CIVIL ENGINEER, M.ASCE, 56, degrees, state licenses, 30 years experience; design, construction and administration bridges, parkways, thruways, airports, harbor works, railroads, underpinning and foundations. PW-3736, Engineering News-Record.

CONCRETE ENGINEER—12 years experience in production, design and Control, on major defense projects also four years soil investigations and analysis. Available at once. PW-3884, Engineering News-Record.

CONSTRUCTION EXECUTIVE—20 years experience Commercial—Hospital and Federal Housing projects. Familiar with office engineering estimating—preparing bids—negotiating contracts—progress scheduling—expediting—supervision and Government procedure. Age 50, now employed in responsible position. Desire change. Present salary $7500. Prefer Eastern Seaboard or South. PW-3828, Engineering News-Record.

POSITIONS WANTED

CONSTRUCTION SUPERINTENDENT, concrete pipe manufacture, considerable experience machine or cast methods. PW-3836, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT, engineer, estimator, 53. Definitely cost conscious, 25 years in responsible supervisory and executive positions. Successful record airports and general construction. Seven years in Central America. Recently specializing in housing projects from raw land to finished job in Midwest. Immediately available. PW-3809, Engineering News-Record.

ENGINEER, CIVIL, 16 years experience construction, field supervision, pipelines, water treatments and sewage disposal plants. Long contract or permanent. PW-3885, Engineering News-Record.

FIELD ENGINEER or Constr. Supt., 31, C.E. Grad., 7 yrs. experience, excavation, concrete & masonry construction. PW-3888, Engineering News-Record.

GENERAL SUPERINTENDENT 52, with a thorough experience in that capacity, on public, commercial and industrial work, including school, hospitals, housing, power plants and government projects. Concrete and masonry specialist, with ability to minimize overhead and construction costs. References. PW-3883, Engineering News-Record.

GRADUATE CIVIL Engineer, structural, 28, married, 1 year highways, 3½ years with a sanitary consulting firm, experienced in surveying, sewer layout and design, reinforced concrete design, and estimating—available June 1. PW-3880, Engineering News-Record.

REGISTERED ENGINEER. Age 38. Experienced in design and detail and all phases of general contracting; including estimating, purchasing, negotiating contracts, project management, etc. Desire position with West Coast general contractor, subcontractor or material sales organization. PW-3881, Engineering News-Record.

STRUCTURAL ENGINEER, 28, experienced steel and concrete designer, seeks responsible position with future. N.Y.C. area. PW-3830, Engineering News-Record.

STRUCTURAL STEEL Draftsman desires to relocate Southwest or West. Six years varied experience in all types steel structures. PW-3877, Engineering News-Record.

SUPT.—ENG., "clerk of the Work Etc." available for position of trust and responsibility, with Architect or Engineer. Familiar with trades, materials, sub-contractors, reports, monthly estimates, tests, inspection, etc. Mature experienced judgment on building and general construction. Executive, good character, excellent references. Eastern States preferred. (No design or drafting). PW-3883, Engineering News-Record.

SUPT.—GEN. Supt. 20 years extensive experience, heavy excavations, sewers, water, mass concrete construction, bridges, highways, airports, flood control. Seeks connection with progressive well established firm. Highest references. Salary required $1200 per month. PW-3886, Engineering News-Record.

SUPERINTENDENT OR Assistant to Project Manager. 21 years construction experience. Heavy excavation, concrete, heavy foundation, sewer and drainage work. All types highway & airport work. Concrete and bituminous paving. Know men, methods, equipment and cost. Available May 1st. PW-3816, Engineering News-Record.

WELDING SUPERVISOR—age 40, background, piping, piers, bridges, docks, subways, and tank farms etc. Foreign work. PW-3781, Engineering News-Record.

SELLING OPPORTUNITY WANTED

WANTED POSITION as Sales Engineer selling engineering and or construction services of industrial buildings. Have many years of field experience as Superintendent. Will go anywhere. Available June 1, 1952. Salary in the $12,000.00 bracket. Sober—like to work. Would like change. SA-3863, Engineering News-Record.

WORK WANTED

Jobs Wanted Any Place.
We have the equipment & experienced Divers for any job Under-Water. Contract or day rates. Brown, 353 Williford, Memphis, Tenn.

Small New Engineering Organization
with vast experience in Mechanical, Piping, and Structural Engineering, desires an opportunity to prove itself to a customer. Efficient and thorough services offered in design, detailing and drafting. The J. H. Frank Engineers, P.O. Box 383, Anniston, Alabama.

SHOVELS—CRANES—DRAGLINES
Buc-Erie 51-B 2 yd. Diesel Shovel 1949.
Manitowoc 1¾ yd Shovel-Drag. New Shovel front.
P&H 855-B 1½ yd Shovel-Crane-Drag. Diesel.
Northwest Model 80-D 2½ yd Diesel shovel.
Lorain 820 1¾ yd. Shovel-Crane. Diesel. 1947.
Lorain Motorcrane MC4 15-18 tons capacity.
Koehring 605 1½ yd. Diesel Shovel.
Lima 1201 std. Diesel Shovel. 3½ yds.
Lima Paymaster 1 yd. Diesel Shovel.
Link-Belt K-520. Diesel Shovel. 3 yds.
Link-Belt K-595 Dragline. 2½ yds. Diesel.

TRUCK CRANES
Lorain Moto-Crane MC4- 15 to 18 tons. Rebuilt.
Koehring 304 20 tons cap. 80' bm. Excellent.
Michigan Model TLDT 12 tons 50' boom.
General 307. 12 tons. Self propelled 60' Bm.
P&H 255-A 20 tons 80' bm. Mack chassis.

CONCRETE PLANTS—BINS & SILOS
B-K 10c ton agg. bin 400 bbl. cement. Complete.
Butler 25' bbl. cement bin elev. screw conveyor.
Johnson 1 compt. 300 ton agg. 500 bbl. cement.
Butler 310 bbl. cement bin 1 yd batcher. Elec.
Cement bin 400 bbls. with batcher. NEW.
Agg. bin 100 tons 3 cpts. 2 yd weighbatcher. New.
Heitzel 3 compt. agg. bin 85 tons w/weighbatcher.

ASPHALT PLANTS
Cedar-Rapids Model FA Port. Excellent.
Cummer 1500 lbs. Semi-Port. Very good.
Std. 1500 lbs. Batch. Sta. Bit.
Simplicity Model S-100. Diesel powered.
Madsen 4000 lbs. Used but little. Excellent.
B-G Model 840-830 Maintenance Plant. Complete.
Hetherington-Berner Heavy Duty Moto-Paver.
Cedar Rapids Tra-el Mix Plant 100-150 tons.

STIFF LEG AND GUY DERRICKS
Steel 35' stiff leg derrick 100' boom.
American 20 ton stiff leg derrick 90' boom.
Stiff leg derrick 15 ton 100 ft. boom.
American 20 ton Guy derrick 100 ft. boom.

CONCRETE MIXERS AND PAVERS
Jaeger BP-5 Asphalt Paver & attachments.
2 Ransome 34-E Dual Drum Pavers Diesel.
Rex 28-S Builders Mixer. Elec. New 1947.
Koehring 4 yd tilting mixer complete electric.

ROAD FORMS
Blaw-Knox and Heltzel 8100 ft. 9"x9"; 10,000 ft. 8"x8" and 3000 ft 10"x8".

RICHARD P. WALSH CO.
30 Church St. New York 7, N. Y.
Cable RICHWALSH COrtlandt 7-0723-4

LOCOMOTIVE
1—Plymouth 6 Ton Gas—36" Ga.—Like New.
1—Brookville 10T-30" Ga. Diesel—Like New.
2—Whitcomb 15 Ton, 36" Ga.—Diesel.
1—Brookville—15 Ton—Diesel—Stdy.—Ga.
1—Plymouth 20 Ton Diesel—48" & Std. Ga.

LOCOMOTIVE CRANES—STEAM
Industrial—50 T. Type L.

MISCELLANEOUS
19—Hopper Cars—15 Ton—36" Ga.
3—Hopper Cars—50 Ton. Excellent.
5—Flat Cars—50 Ton.
2—Conway Mod. 75 Muckers. #256 & 305. Bargains.
1—Mundy D.D. Hoist—300 H.P.—3—60—2200.
20—Johnson Weigh Batchers.
American 30 Ton Stiffleg. New.

R. H. BOYER
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Phone Sagamore 2-7132

FOR IMMEDIATE SALE
1 used Worthington-Ransome 34E
Dual Drum Paver, serial 14714. Excellent condition, ready to go to work. Machine can be seen at
CARL GOODWIN & SONS
500 De Lano Street Allegan, Michigan
Tel. Allegan 65

For Sale
HR PRIME MILD STEEL ROUNDS
60 tons 1" x 20'
175 tons 1⅛" x 20'
Immediate Shipment from Stock
HYMAN-MICHAELS COMPANY
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PILE HAMMERS AND EXTRACTORS
NEW OR FACTORY REBUILT
FOR SALE • • • FOR RENT
327 N. BELL AVE., CHICAGO, ILL.

THE KEY TO LOWER CONSTRUCTION COSTS!

Key Your Equipment to the Job!

Don't waste a big compressor on a small job! E.C.A. has the RIGHT SIZE equipment for every construction job! Three plants—48 years' experience at your service!

THIS MONTH'S SPECIAL
75 KW DIESEL GENERATOR
1—75 KW (92.5 KVA) Diesel Generator, 220/440/60/3, powered by Cat. D-13000 Diesel engine, complete with electric starting and control panels. LATE MODEL. BARGAIN.

AIR COMPRESSORS
Portable, 2-stage
3—500 cu. ft. Ing. Rand. 2 powered by Wauk.-Hesselman Diesel engines, one on pneu. tires and one on steel wheels. 1 powered by Waukesha gas engine on steel wheels.
12—Sullivan, LeRoi, Chicago Pneumatic, Ing. Rand, Schramm, Gardner Denver, 105 and 160 cu. ft., gas powered.
WE HAVE A LARGE SELECTION OF COMPRESSORS, ALL SIZES.

BIN
1—100 ton Blaw-Knox Model P-3100, 3-compt. batching bin. With 1½ yd. #63B weigh batcher. For rental only.

CRANES, CRAWLER
1—1½ yd. P&H 655-A Diesel Crane or Dragline, Ser. 6426. With 75' boom, 20' jib. Power Cat. D-13000 Diesel eng. Hi gantry. Wt. 82,900#. Rental only.
1—Mdl. 501 Koehring #1071, 60', 70', 80' boom, 18' jib, Mdl. K. Wisc. gas eng. Cap. 40,000# @ 12'. Shpg. wt. 97,200#.
1—Bucyrus Erie Mdl. 33B 1¼ yd. Crane, Ser. 16502, powered by 8 cyl. V8 LeRoi gas eng. 50' boom, fairleads and vertical tagline.

CRANES, LOCOMOTIVE
1—25 ton Industrial Brownhoist Type G, 40-50-60' boom, Nat'l. Board Boiler, 150#.

DERRICKS
2—American Terry steel erectors, 70' mast, 60' boom, 6 ton @ max., 11 ton @ 20', also have extra center sections.
1—25 ton Model E. Wiley Stiffleg Derrick, cap. 25 ton at 38', 10 ton at 50'. With 60' boom, 12' bullwheel. For hook or clamshell operation. With galvanized sheaves.

HOISTS, GASOLINE
1—100 HP single drum Jaeger. Special Model LCT6. 6 cyl. Hercules gas engine with Twin Disc Torque Converter, cap. from 3,000# @ 350 FPM to 31,000#. Main drum reversible. Ideal for salvage operation or heavy lifting. Wt. 11,500#. New condition.
WE HAVE A LARGE SUPPLY OF HOISTS, ELECTRIC, GAS, AND STEAM POWERED, 1, 2 & 3/DRUM.

LOCOMOTIVE, 15 TON, STD. GA.
1—15 ton Vulcan Std. Ga. gasoline powered locomotive, Ser. 3903, 6 cyl. Mdl. JMS LeRoi gas eng. Wt. 30,000 lb.

PUMPCRETE
1—Mdl. 190 Rex single #CP114, 4 cyl. Wauk. gas eng. with remixing hopper powered by 4 cyl. LeRoi gas eng. Recommended pumping distance 1000' with 7" pipe. Max. vert. lift 110'. Cap. 23 to 30 cu. yds. per hour. $6,500.

PUMPS
WE HAVE A LARGE SUPPLY OF PUMPS, ALL SIZES, FROM 1½" UP TO 10". ELECTRIC OR GAS, CENTRIFUGAL, VERTICAL AND HORIZONTAL. ALSO DIAPHRAGM, SLUDGE, STEAM AND SUMP PUMPS.

TOWERS
1—37' Jaeger Hoister Model SRT, with single drum hoist, 66"x69" platform, cap. 2000#. Wt. 4360#.
1—New PT tower, American, 78', Model III, Type PT. Complete with cage, cathead and bottom sheave. Wt. 3538#.
CONTACT US FOR YOUR TOWER REQUIREMENTS

Partial list only—Please let us quote on your requirements

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Box J-608, Sub. of Phila.
Phone MAdison 6-2200

PITTSBURGH 30, PA.
Box J-933
Phone FEderal 1-2000

EQUIPMENT CORPORATION of AMERICA

CHICAGO 12, ILLINOIS
1155 S. Washtenaw Ave.
Phone NEvada 8-2400

NEW YORK 7, N. Y.
30-J Church St.
Phone WOrth 2-0036

FOR RENT
MANITOWOC SPEEDCRANES
Model 3500 — crane or dragline — 80 ft. boom — manual swing — 20' or 30' jibs — 40 ton lifting capacity — or 2½ c.y. drag bucket.
Model 2000-B — crane or dragline — 60 ft. boom — manual controls — 20' jib — 25 ton lifting capacity — or 1½ c.y. drag bucket.
McCARRICK BROTHERS, INC.
1700 E. Ridge Pike P. O. Box 291
Norristown, Pa. *Phone 8-4231*

For Rent
SPEEDCRANES
LATE MODELS
Manitowoc Diesel Powered Speedcranes for rent. 25, 40 and 60 ton capacities with booms 100' or more, 20' and 30' jibs. Special price on long rentals.
FORSYTHE EQUIPMENT CO., INC.
37-11 Vernon Blvd. Long Island City, New York
Tel. STillwell 4-1030

Used Shovel Attachments
FOR SALE
1—NORTHWEST Model 25
3—NORTHWEST Model 6
HODGE & HAMMOND, INC.
720 Garrison Ave. N. Y. 59, N. Y.
Phone: Kilpatrick 2-2400

NEW and REBUILT
STORAGE BATTERY
LOCOMOTIVES
1½ to 10 Ton — 18" to 56" Track Gauge
GREENSBURG MACHINE CO.
Greensburg, Penna.

An Invitation ...

To Use the World's Largest Equipment Rebuilding Facilities

Where rebuilding is a business—with over 25 years of experience on all types of construction equipment—where highly trained mechanics with precision tools—can build back into your equipment many years of additional and efficient usefulness.

Naturally, the thoroughness employed in rebuilding our own equipment would be used on yours.

You are invited to investigate our complete facilities.

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CAMP HILL, SUBURB OF HARRISBURG

BRANCH OFFICES: PHILADELPHIA, PA. • SYRACUSE, N.Y.

L. B. SMITH INC.

New and Used Equipment News

Prepared Monthly by Ed Woolford at Camphill, Pa.

VOL. 1 NO. 1

AIR COMPRESSORS

Gardner-Denver 500 cu. ft. diesel, new condition.
Gardner-Denver 365 cu. ft. Diesel Rebuilt.
Gardner-Denver 160 cubic foot gas powered compressor on 4 steel wheels.
Ingersoll-Rand 105 cubic foot, Waukesha gasoline power, on two rubber tires.
Schramm 105 cubic foot gas powered compressor on 4 steel wheels.
Pennsylvania 12" x 10" class 3A single cylinder, 355 cubic foot P.D., flat belt driven 50 HP slip ring motor.
Worthington two-stage, water-cooled, vertical 250 ☐, 60 CFM, new condition.
Paving breakers, jackhammers, wagon drills, tie tampers.

QUARRY EQUIPMENT & BINS

4024 Cedarapids roll, rebuilt.
Symons 3' short head, w/motor and drive.
Cedarapids Rock-It plant with 2025 jaw, 3033 mill. New.
Cedarapids 1236 Model 6C plant, new.
3033 Cedarapids Hammermill, rebuilt.
1030 Good Roads. Reconditioned.
10x7 Allis-Chalmers Blake type jaw crusher.
☐1 Cedarapids Kubit impact breaker.
42" x 10' apron feeder, rebuilt.
4' x 6' Kennedy Van Saun single deck.
3' x 6' Kennedy Van Saun triple deck.
3' x 10' Symons double deck.
3' x 12' Simplicity 3 deck, rebuilt.
2—15 cu. yd. Cedarapids sand drags, new.
16" x 90' bucket elevator.
60-ton, 2-compartment, 8'x18' storage bin with clamshell gates.
100-ton, 2-compartment, 13'x23' storage bin with clamshell gates.
Special bins to your specifications.
Conveyors—18"—24"—30"—36". Also belt.

TRUCKS—TRAILERS

1½-ton Ford with any body.
2½-ton GMC, rebuilt.
2000-gallon tanks on semi-trailer mounting.
New and rebuilt dump bodies.

GENERATORS & LIGHT PLANTS

1½ KW to 125 KW, alternating and direct current gasoline and diesel powered.

SHOVELS—CRANES

Lorain L-50, 1-yd. diesel. New condition.
Brownhoist 1-yd. gas shovel & crane.
Lorain L-41 diesel powered ¾-yd. shovel, rebuilt.
Link-Belt LS50 gas ½-yd. shovel & hoe.
Lorain 30 gas ½-yd. shovel, hoe, crane.
P&H Model 150, ½-yd. crane.

SHOVEL & CRANE ATTACHMENTS

Lorain TL-20 shovel attachment.
Lorain 41 Chain Crowd Shovel Attachment. Complete.
Lorain 40 Hi-Lift shovel attachment.
P&H 203 shovel attachment.
Chain crowd Lorain 30A shovel attachment.
Bucyrus-Erie 1½-yd. rock bucket.
Lorain 80-820 fairleads.

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Lorain TL-25 hoe attachment, new.
Lorain 30 hoe attachment complete.
¾-yd. Lorain, 40, LBS ☐6105, 44" cutting width.
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Bucyrus-Erie 1¼-yd. gas air, LBS ☐3782, fair.
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Lorain 75B, 1¼-yd. extended lip, 1¾-yd. LBS ☐2260.
Pettibone-Mulliken 2-yd. Lorain 82 or 820, manganese, LBS ☐5361.
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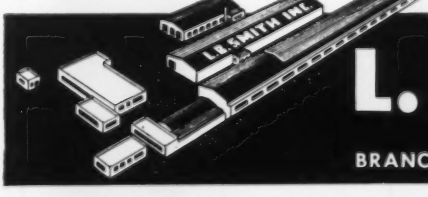

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Crane Boom Attachment 35' with extra 20' Section.
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Caterpillar Model D8 Tractor, Serial 8R-6106 with LeTourneau AKS Angledozer with Front Single Drum and Rear Double Drum P.C. unit. Purchased new June 1946.
Caterpillar Model D8 Tractor, Serial 8R-6870 with LeTourneau AKS Angledozer with Front Single Drum and Rear Double Drum P.C. unit. Purchased new June 1946.
Wooldridge Scraper Model T.C.R., Serial #15040, capacity 15-18 Cu. Yds. Purchased new June 1946.
LeTourneau Model L.P. Scraper, Serial #22860, capacity 12 cu. yds. Purchased new June 1946.
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All above Equipment located Western Pennsylvania

FS-3756, Engineering News-Record
330 W. 42nd St., New York 36, N. Y.

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FS-3474, Engineering News-Record
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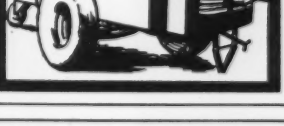

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FS-3838, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

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2 Anchor Mortar Mixers 1 bag capacity

ASHLAND CONSTRUCTION COMPANY
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OFFICIAL PROPOSALS

Bids: April 29, 1952

East Delaware Tunnel Outlet Works

CONTRACT 417

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 10:00 A.M., Eastern Standard Time, on Tuesday, April 29, 1952, for Contract 417, for the construction of the outlet works of the East Delaware tunnel of the Delaware aqueduct, in the Town of Neversink, Sullivan county, New York. The work comprises the construction of about 88 feet of concrete covered and lined steel pipe conduit ten feet six inches in diameter, about 106 feet of concrete covered and lined by-pass pipes 54 inches and 64 inches in diameter, the substructure of a powerhouse, an outlet chamber, a stilling chamber, a discharge channel and appurtenances of all of these structures, including Venturi meters and piping, all as set forth in the specifications.

No bill will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of the City of New York, in the amount of seventy-five thousand dollars ($75,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained at the office of the Chief Engineer, Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted in a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders, desiring blueprints of the contract drawings for their own use may secure same for the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McGAHEN, EDWARD C. MAGUIRE, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

Bids: April 22, 1952

Water Works Improvement

GLENCOE WATER WORKS
GLENCOE, ILLINOIS

Sealed bids will be received at the office of the Village Clerk in the Village Hall, Glencoe, Illinois until 8:00 o'clock P.M., April 22, 1952 and at that time publicly opened and read in the Board Room at the Village Hall, on the following water works improvement contracts:

A—Structures and Piping
B—Mixing Equipment
C—Filter Equipment
D—Pumping Equipment

Plans and specifications are on file and may be examined at the office of the Village Clerk and of Mr. George R. Young, Village Engineer, Village Hall, Glencoe, Illinois, and at the office of Alvord, Burdick & Howson, Engineers, 20 N. Wacker Drive, Chicago 6, Illinois.

Plans and specifications may be obtained by depositing cash or a certified check payable to the Village of Glencoe or to Alvord, Burdick & Howson in the amount of $25.00 for Contract A, $10.00 for Contract B, $20.00 for Contract C, and $5.00 for Contract D, for each set of documents so obtained. The Amount of the deposit for one set of documents will be refunded to each actual bidder who returns the plans and documents in good condition within ten days after the opening of bids. Additional copies of the contract documents may be bought for the same price, with no refund.

Each bid must be accompanied by a certified check or bidder's bond in a surety company authorized to do business in the State of Illinois for ten (10%) per cent of the bid, payable to the order of the Village of Glencoe, Illinois, which sum shall be forfeited in case the bidder fails to enter into contract within ten (10) days after the contract has been awarded to him.

The successful bidder will be required to furnish a surety bond satisfactory to the Village in a surety company authorized to do business in the State of Illinois, covering the full amount of his contract.

No bid may be withdrawn after the time for opening bids is passed.

The Village reserves the right to reject any or all bids or waive any informality in any bid, and to accept any considered advantage to the Village.

Bidders are notified that the successful bidder will be required to pay not less than the prevailing rate of wages for workmen engaged in the work, in accordance with the provisions of An Act of The General Assembly of the State of Illinois entitled 'An Act Regulating Wages of Laborers, Mechanics and Other Workmen Employed Under Contracts For Public Works', approved June 26, 1941.

(SIGNED) H. B. BRAY
Village Clerk
Glencoe, Illinois

Bids: May 9, 1952

Approaches to Bridges

DELAWARE RIVER JOINT TOLL
BRIDGE COMMISSION
526 Broad Street Bank Building
Trenton 8, New Jersey

Sealed proposals for the construction of the western approaches for three bridges over the Delaware River, between Pennsylvania and New Jersey, will be received by the Delaware River Joint Toll Bridge Commission at its office, 526 Broad Street Bank Building, Trenton 8, New Jersey, until eleven o'clock (11:00 A.M., E.D.S.T.) on the 9th day of May, 1952, at which time and place all bids will be publicly opened and read aloud.

After April 9, 1952, Instructions to Bidders, form of Proposal, form of Contract, form of Performance Bond, Plans and Specifications may be examined at the office of the Commission, above address, and copies thereof obtained upon payment of $10.00 for each set, which amount is not returnable.

The names, location and approximate quantities of major items for the three approaches are as follows:

PENNSYLVANIA APPROACHES
Contract No. 104—Delaware Water Gap Bridge
Earthwork ..... 86,000 c.y.
Pipe Drains (6-in. to 48-in.) .... 3,300 l.f.
Inlets, Manholes and Valve Pits .. 39 units
Concrete Curb and Gutters ..... 2,000 l.f.
Concrete Pavements ..... 8,900 s.y.
Contract No. 204—Portland-Columbia Bridge
Earthwork ..... 230,000 c.y.
Pipe Drains (6-in. to 30-in.) .... 20,000 l.f.
Inlets, Manholes and Valve Pits .. 58 units
Concrete Pavements ..... 24,000 s.y.
Concrete Curb and Gutter ..... 7,100 l.f.
Topsoil, Seeding and Mulching 52,000 s.y.
Contract No. 304—Milford-Montague Bridge
Earthwork ..... 28,000 c.y.
Pipe Drains (6-in. to 36-in.) .... 2,000 l.f.
Inlets and Manholes ..... 17 units
Concrete Pavements ..... 8,300 s.y.
Concrete Curb and Gutter ..... 1,600 l.f.

Proposals may be submitted for any one approach; for any two approaches, or for all three approaches.

Each Proposal must be accompanied by a certified check in the amount of not less than five (5) per cent of the amount of the Proposal. If the bidder submits Proposals for more than one contract, a single certified check in the amount of not less than (5) per cent of the largest amount of work included in a proposal will be sufficient.

All checks shall be made payable to the Delaware River Joint Toll Bridge Commission, which amounts shall be forfeited as liquidated damages if the bidder or bidders fail, within ten (10) consecutive calendar days after written notice that the bidder or bidders have been awarded the contract, to enter into a written contract, with the Commission in accordance with the accepted bid, and to give a Performance Bond satisfactory to the Commission, equal to one-hundred per cent (100%) of total amount of contract.

The Commission reserves the right to waive any informalities in the bids received; to reject any or all bids, and to award the contract only to those experienced in this class of work, and to the bidder whose proposal is deemed by the Commission to be most advantageous to the public interest.

DELAWARE RIVER JOINT TOLL
BRIDGE COMMISSION
Alexander R. Miller, Chairman

April 9, 1952

Bids: May 8, 1952

Sanitary Sewer System

Sealed proposals will be received by the North York Borough Authority of the Borough of North York, York County, Pennsylvania in the Council Chamber, second floor, Liberty Fire Company, 1040 North George Street, York, Pa., until 7:30 P.M., Eastern Standard Time, the day of May 8, 1952, for the CONSTRUCTION OF A COMPLETE SANITARY SEWER SYSTEM AND APPURTENANCES IN THE BOROUGH OF NORTH YORK, YORK COUNTY, PENNSYLVANIA, at which time and place they will immediately be publicly opened and read aloud.

The Information for Bidders, Form of Contract, Plans, Specifications and Form of Performance Bond may be examined at the office of The Weigle Engineering Company, 230 N. Duke St., York, Pa., copies thereof may be obtained at the said office of The Weigle Engineering Company, upon payment of $30.00 for each set. Any bidder upon returning such set in good condition will be refunded his payment and any non-bidder upon so returning such set promptly will be refunded $15.00.

The North York Borough Authority reserves the right to waive any informalities in, or to reject, any or all bids.

A bid bond or certified check made payable to the North York Borough Authority in the amount of five (5%) per cent of the bid must be deposited by each bidder with his bid as a guarantee that in the case the contract is awarded to him, that he will within five (5) days, execute such contract and furnish a satisfactory Performance Bond. On failure to do so he shall forfeit the deposit as liquidated damages, and acceptance of the bid will be contingent upon the fulfillment of this requirement by the Bidder.

The successful Bidder will be required to furnish a Performance Bond and Labor and Materialman's Bond satisfactory to the North York Borough Authority in the amount of the contract, and having a surety thereon such company or companies as are acceptable to the Authority.

No Bidder may withdraw his bid within forty-five (45) days, after the date set for the opening thereof. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof.

NORTH YORK BOROUGH
AUTHORITY
Perry Peiffer, Secretary
1148 North George Street
North York, Pennsylvania

April 10, 1952

U. S. Government

Office of the District Engineer, Corps of Engineers, U. S. Army, 1217 U. S. Post Office and Custom House, St. Paul 1, Minnesota, —Sealed bids, in duplicate, for furnishing all labor and materials and performing all work required for Stone Protection at Homme Dam, Stage No. 2, Park River, North Dakota, will be received in this office until 2:00 P.M., C.S.T., April 22, 1952, and then publicly opened. Further information upon application.

BIDS FOR PATROL BOAT—Memphis District Corps of Engineers, U. S. Army, P.O. Box 97, Memphis 1, Tenn. Sealed bids will be received here until 11:00 a.m., C.S.T., April 22, 1952, and then publicly opened for construction of a steel, Diesel, twin-screw, 115-foot patrol boat. $10.00 deposit required on plans. Information on request.

Department of Commerce, Bureau of Public Roads, March 25, 1952. SEALED BIDS will be received at the office of the Division Engineer, Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia, until 11:00 a.m., E.S.T., APRIL 25, 1952, for Project 1E2, Baltimore-Washington Parkway, Prince Georges County, Maryland. Bridge at Beaverdam Road, Two Box Culverts and Approach Grading. The approximate quantities of the more important items are: 26,590 cu. yd. Excavation, 2,295 cu. yd. Cement Concrete, and 364,000 lb. Reinforcing Steel. Minimum wage rates have been fixed as required by law. Plans, specifications and proposal forms are available upon request at the address given above. H. J. Spelman, Division Engineer.

OFFICIAL PROPOSALS

Bids Asked April 22, 1952

Ten Gravel Barrel Wells & Pumping Stations

Sealed bids will be received until 9:00 A.M. EST, April 22nd, A.D., 1952, by the City Commission in the City Commission Chambers at Fort Lauderdale, Florida for "Ten Gravel Barrel Wells and Pumping Stations".

Bidding blanks may be obtained from office of the Engineer. Plans and specifications are on file in the office of the Engineer.

A deposit of $25.00 for plans and specifications, and of $25.00 each for additional copies of plans or specifications, will be required. All deposits for plans and specifications will be refunded upon their return in good condition within ten (10) days of the opening of bids.

A certified check for 2% of the total amount of the bid, made payable to City of Fort Lauderdale, Florida shall accompany each proposal as evidence of good faith and responsibility of the bidder. This check shall be retained by the payee as liquidated damages should the bidder refuse or fail to enter into a contract with the payee for the execution of the work embraced in the proposal, in the event the proposal of the bidder is accepted.

The Owner reserves the right to reject any or all bids.

H. M. LINK
City Engineer

Bids, April 22, 1952

Raw Water Mains

Sealed bids will be received until 9:00 A.M. EST, April 22nd, A.D., 1952, by the City Commission in the City Commission Chambers at Fort Lauderdale, Florida for "Laying 8", 10", 12", 16", 18", 20", 30", and 42" Raw Water Mains".

Bidding blanks may be obtained from the office of the Engineer. Plans and specifications are on file in the office of the Engineer.

A deposit of $25.00 for plans and specifications, and of $25.00 each for additional copies of plans or specifications, will be required. All deposits for plans and specifications will be refunded upon their return in good condition within ten (10) days of the opening of bids.

A certified check for 2% of the total of the bid, made payable to City of Fort Lauderdale, Florida shall accompany each proposal as evidence of good faith and responsibility of the bidder. This check shall be retained by the payee as liquidated damages should the bidder refuse or fail to enter into a contract with the payee for the execution of the work embraced in the proposal, in the event the proposal of the bidder is accepted.

The Owner reserves the right to reject any or all bids.

H. M. LINK
City Manager

Bids: April 15, 1952

River Pumping Station

Sealed proposals will be received at the office of The Morgantown Water Commission at 213 Fayette Street, Morgantown, West Virginia, until 5:00 P. M. Eastern Standard Time on April 15, 1952, for the performing of the following items of work at River Pumping Station, Morgantown, West Virginia:

1) Construct filters and piping
2) Construct filter superstructure
3) Remove two wood tanks
4) Convert steel tank to clarifier
5) Remove existing piping
6) Install yard piping and drains
7) Install chemical treatment equipment and foundations
8) Reconstruct chemical feed room
9) Install chemical feed lines

Copies of Specifications may be obtained at the Commission office on and after March 26, 1952. A deposit of $50.000 will be required for each set of plans.

Each proposal shall be accompanied by a certified check in an amount not less than ten (10) percent of the total bid, in accordance with the provisions contained in the specifications or a satisfactory bid bond in like amount.

The Morgantown Water Commission reserves the right to reject any or all bids or to accept any bid which it deems to its best interest.

THE MORGANTOWN WATER COMMISSION
MORGANTOWN, WEST VIRGINIA

OFFICIAL PROPOSALS

Bids: April 16, 1952

New York State Highway Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, Albany, N. Y.—Pursuant to the provisions of the Highway Law, the Buildings Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on April 16, 1952, by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 2				
		LACY KETCHUM, 109 No. Genesee St., Utica 1, New York				
Fulton	FARC 52-26	Proj. F216(2); F604(3); F419(4) Mayfield Village, S. H. 5194 Mayfield-Northville Pts. 1 & 2, S. H. 363-341 Northville-Chapmans Corners, S. H. 362 Northville Village, North, S. H. 5065	4.96	9" Cem. Conc. Pavt. 24' Wide = 4.89 mi. Asp. Conc. Ty. 1A, Opt. = 0.07 mi.	$36,000 Plans $15	$645,000
Montgomery	RC-M. T.) 52-30	Canajoharie-Fultonville, Pt. 2, S. H. 5371 (Relocated for N. Y. State Thwy.-The Mohawk Sect.-Sub. 14)	4.63	Asp. Conc. Ty. 1A, Opt. Twin Box Br. 41'-6" Sp.	$27,000 Plans $15	492,000
Oneida	FASS 52-1	Proj. S-363(1), Steuben-Remsen Co. Rd.	3.99	D. S. Treat. Graded Grav.	$4,500 Plans $15	172,000
Madison	M. T. 52-3 M. T. C. 52-4 S. T. 52-7 R. C. 52-33	N. Y. S. Thruway-The Mohawk Section-Subdivision 2 & 3 and City of Oneida (Court St. Co. Rd.; Canastota-Durhamville Co. Rd.; Schoolhammer Rd. Cut-off) & Canastota Village S. H. 908	7.22 (1.31 Access)	9" Conc. Conc. Pavt. 2 @ 25 Wide & Var. = 6.25 mi. Asp. Conc. Ty. 1A Opt. = 2.06 mi. D. S. T. Grad. Grav. = 0.22 mi. Hy. Sep. 4 Sp. Alpha I-Beam 230' 2 Sp. Alpha I-Beam 54' ea. Hy. Sep. 4 Sp. Alpha I-Beam 213' Hy. Sep. 4 Sp. Alpha I-Beam 277' Twin Box R. C. Culv. Type Br. 2 @ 16'-3" Hy. Sep. 4 Sp. Alpha I-Beam 203' 2" ALPHA ROYALTY = $1,149.84	$200,000 Plans $100	$3,457,000
		DISTRICT No. 3				
		WM. ROBINSON, Weigh Lock Bldg., Syracuse 1, New York				
Onondaga	O. T. 52-4 S. T. 52-4 R. C. 52-32	New York State Thwy.-The Ontario Section-Subdivision 7 (Warners-Liverpool) Cold Spring-Liverpool S. H. 670 2 Marginal Hys.: Co. Rd. 64, Co. Rd. 31; Co. Rd. 194, Relocating Onondaga Lake Parkway	9.67	9" Conc. Conc. Pvt. 26@25' Wide & Var. = 7.22 mi. Asp. Conc. Ty. 1A, Opt. = 2.38 mi.; Misc. Work = 0.07 mi.; Hy. Sep. Alpha I-Beam 4 Sp. 72', 26@108', 60' Hy. Sep. Alpha I-Beam 4 Sp. 32' 7", 26@63'-3", 50'-4" Hy. Sep. Alpha I-Beam 4 Sp. 50' 4½", 26@79'-11½", 42'-4½" R.R. Sep. Rig. Fr. Arch 42'-4" Spans Br. Deck Girder 3 Sp. 2@ 120', 144' Alpha Hy. Sep. Alpha I-Beam 3 Sp. 48', 66' 8", 46' Hy. Sep. Alpha I-Beam 4 Sp. 26@55'-10½", 26@ 84'-11" Alpha Royalty = $2324.96	$320,000 Plans $100	5,849,000
		DISTRICT No. 4				
		A. R. MULLIGAN, Barge Canal Terminal, Rochester 1, New York				
Monroe	FASS 52-4	Proj. S289(1), Edgemere Drive Co. Rd.	0.72	Found. Cse. Gravel	$17,000 Plans $10	308,000
Monroe	FAC 52-2	Proj. U1089(2), Rochester City-Inner Loop-Front St.-Main St. West	0.35	Demol. of Bldgs. & Misc. Work	$5,000 Plans $10	97,000
Monroe	O. T. 52-6 R. C. 52-31 S. T. 52-9	New York State Thwy.-The Ontario Section-Subdivisions 8B & 9 (East River Rd. to Rte. 65) West Henrietta-Rochester, S.H. 62 Rush-Henrietta, S. H. 1283 East River Rd.; Middle Rd.; Pinnacle Rd.; Pittsford-Henrietta, Town Line Rd. Return Loop	1.98	9" Conc. Conc. Pavt. 2@ 25' Wide = 1.25 mi. Asp. Conc. Ty. 1A, Opt. = 0.73 mi. R.R. Sep. 65'-9¾" Sp. I-Beam Hy. Sep. 4 Sp. Alpha I-Beam 2@48'-6" & 2@78'-3" Hy. Sep. 4 Sp. Alpha I-Beam 2@38'-3" & 2@66' R.R. Sep. 29'-11¾" Sp. R. C. Rig. Frame Hy. Sep. 5 Sp. Alpha I-Beam 2@42', 2@64', 80' Hy. Sep. 6 Sp. Alpha I-Beam 2@43'-6", 2@64'-10", 2@71'-4" Alpha Royalty = $1349.52	$110,000 Plans $50	1,990,000
		DISTRICT No. 7				
		R. F. HALL, 444 Van Duzee St., Watertown, New York				
Franklin & St. Lawrence	FASSH 52-5	Proj. S367(1), Helena-Hogansburg, Pts. 1 & 2	4.41	Bit. Mac. Ty. 1 Timber Trestle Br. 51' Span	$18,000 Plans $15	315,000

(Continued on the following page)

OFFICIAL PROPOSALS

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 8				
		J. S. Bixby, Pleasant Valley Road, Poughkeepsie, New York				
Orange	PIP 52-1	Palisades Interstate Pkwy., Pts. 1 & 2	1.01	Grading = 0.17 mi. 8" Cem. Conc. Pavt. 48' Var. Wide = 0.31 mi. Asp. Conc. Ty. 1A, Opt. = 0.53 mi. Hy. Sep. Rig. Fr. Arch 2 Sp. @ 63.5' ea. Hy. Sep. Rig. Fr. Arch 2 Sp. @ 42.71' ea. Rig. Fr. Arch Br. 22.33' Sp.	$40,000 Plans $25	685,000
Westchester	W. S. No. 2	Truck Weighing Sta. Turn-out on Port Chester Village, S. H. 5719	0.16	Asp. Conc. Ty. 1A, Opt.	$2,000 Plans $10	34,500
		DISTRICT No. 9				
		F. W. Donovan, 71 Frederick St., Binghamton, New York				
Schoharie	FARC 52-20	Proj. 5-6574 4 Central Bridge-Sloansville, S. H. 1215	3.14	Asp. Conc. Ty. 1A, Opt.	$35,000 Plans $15	587,000
		DISTRICT No. 10				
		J. J. Darcy, Montauk Highway at East Little Neck Rd., Babylon, L. I., New York				
Nassau	FASS 52-7	Peninsula Boulevard (Merrick Rd.-Ocean Ave.)	1.19	Asp. Conc. Ty. 1A, Opt. = 1.03 mi. Misc. Work = 0.16 mi.	$35,000 Plans $10	630,000
Suffolk		Proj. 5390-1 Cont. No. 2 Village of Ocean Beach	0.38	Beach Protection (Hydraulic Fill)	5% of Bid Plans $10	31,350

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, the Buildings Law, and the Public Authorities Law, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

Bids: April 30, 1952

San Juan-Bayamon Road

GOVERNMENT OF PUERTO RICO
DEPARTMENT OF THE INTERIOR

March 31, 1952

The Board of Awards of the Department of the Interior of Puerto Rico, will receive sealed proposals for the construction of 0.695 Km. = 0.376 Miles of Project U-2-1 (1) San Juan-Bayamon Road (Martin Peña Channel Bridge), Municipality of San Juan, Puerto Rico.

Bidders shall submit their proposals at the office of the Board of Awards in the Department of the Interior at Santurce, Puerto Rico, until 2:00 P.M. (Puerto Rico time) on April 30, 1952, at which time and place said proposals will be publicly opened and read aloud.

Attention is called to bidders from the Continental United States, that their proposals must be received at the office of the Board of Awards in the Department of the Interior, San Juan, Puerto Rico prior to the time of the opening of bids.

Plans, specifications, instructions to bidders, and all necessary information may be obtained at the office of the Procurement and Contracts Division, Department of the Interior, 206 Ponce de Leon Avenue, San Juan, Puerto Rico, and at the office of Dr. D. B. Steinman, Consulting Engineer, Roebling Building, 117 Liberty Street, New York 6, N. Y. upon a deposit of two hundred ($200.00) DOLLARS in cash, money order or certified check payable to the Commissioner of the Interior of Puerto Rico until April 23, 1952, 5:00 P.M. o'clock, local time. The full amount of the deposit will be refunded to each depositor upon the return of the plans and specifications in good condition to the Commissioner of the Interior, San Juan, Puerto Rico, within twenty (20) days after the opening of the bids.

The names, location and approximate quantities of major items for this project are as follows:

PART I

PROVISIONAL DETOUR TIMBER TRESTLE BRIDGE OVER MARTIN PENA CHANNEL ON INSULAR ROAD NO. 2

Crushed Stone	5,100 CuM
Selected Borrow Material	94,700 CuM
Vertical Sand Drains	8,200 LnFt
Timber Piling	11,800 LnFt

PART II

PERMANENT STEEL AND CONCRETE BRIDGE OVER MARTIN PENA CHANNEL ON INSULAR ROAD NO. 2

	ALT. "A"	ALT. "B"
Unclassified Excavation	8,500 CuYd	8,500 CuYd
Excavation for Structure	2,900 CuYd	2,700 CuYd
Selected Borrow Material	1,600 CuYd	1,600 CuYd
Concrete	7,300 CuYd	7,100 CuYd
Structural Steel	4,400,000 Lbs	4,400,000 Lbs
Reinforcing Steel	840,000 Lbs	780,000 Lbs
Timber Piling	95,700 LnFt	8,000 LnFt
Steel Piling	6,400 LnFt	6,400 LnFt
Concrete Piling		51,300 LnFt

This project is eligible for an allotment of controlled materials as needed, under N. P. A. regulations.

Proposals must be submitted with Part I and Part II completely filled out, since both together constitute the Contract.

Each proposal must be accompanied by a certified check or bid bond in the amount of ONE HUNDRED THOUSAND ($100,000.00) DOLLARS, payable to the Commissioner of the Interior, San Juan, Puerto Rico.

The Board of Awards reserves the right to accept any bid or to reject any or all bids to waive informalities and to award the contract under the conditions found most favorable to the People of Puerto Rico.

Sgd.
ROBERTO A. SANCHEZ VILELLA
Commissioner

Bids: May 6, 1952

Reinforcing Mains

Office of City Purchasing Agent
Nashville, Tennessee

Sealed bids will be received by the Purchasing Agent of the City of Nashville, Tennessee, at the office of the Purchasing Agent, until 10:00 A.M., Central Standard Time, on Tuesday, May 6, 1952, for 30" and/or 24" Reinforcing Mains on Cherry Avenue, Chestnut Street, 9th Avenue South, Edgehill Avenue, 10th Ave. South, 11th Avenue South, 21st Ave. South and Garland Avenue, including all cross-connections, valves, fittings and appurtenances, as well as special cross-connection and by-pass at Merritt Street and Hagan Street, according to the plans and specifications which are on file in the Office of the Director of the Nashville Waterworks Department, Room 201 City Hall, Nashville, Tennessee, and also the office of The Chester Engineers, 210 East Parkway, Pittsburgh 12, Pennsylvania. Immediately after closing time for the receipt of bids, they will be publicly opened and read aloud in the office of the Purchasing Agent, City Hall.

The successful bidder will be required to furnish satisfactory Performance Bond and Labor and Materialmen's Bond.

All bids shall be made upon the blank forms of the contract documents. Copies of all contract documents, including Proposal Form, Contract Plans and Specifications and Instructions to Bidders, may be obtained at the office of The Chester Engineers by depositing Twenty-five Dollars ($25.00) for each set of documents so obtained. The entire deposit will be refunded to each actual bidder, and Fifteen Dollars ($15.00) will be returned to all others who return plans and specifications in good condition within ten (10) days after opening of bids.

The right is reserved by the City of Nashville, through its Mayor, to reject any and all bids, to waive any informalities in the bids received, and to accept any bid which, in its opinion, may be for the best interest of the City.

A certified check or bank draft, payable to the City of Nashville, or a satisfactory bid bond executed by the bidder and a Surety Company authorized to transact business in the State of Tennessee, in an amount equal to Five Per Cent (5%) of the bid, shall be submitted with each bid.

No bid may be withdrawn after the schedule time for the receipt of bids.

CITY OF NASHVILLE, TENNESSEE
E. B. SMITH, Purchasing Agent

OFFICIAL PROPOSALS

U. S. Government

DEPARTMENT OF THE INTERIOR. Bureau of Reclamation. Sealed bids (Specifications No. DC-3701) will be received at Ephrata, Washington, until May 1, 1952, for furnishing labor and materials for: Earthwork, pipe lines, and structures, Area WS laterals, sublaterals, and wasteways, West Canal Laterals, Columbia Basin Project, Washington. Location: Near Quincy, Washington. Principal items are: 241,000 cu.yds. of excavation; 1,200 cu.yds. of concrete; furnishing and laying 8,700 lin.ft. of 15-inch to 42-inch diameter standard strength concrete culvert pipe; furnishing and laying 1,345 lin.ft. of 42-inch diameter H25P, H50P and H75P reinforced concrete pressure pipe; furnishing and installing 37,000 lbs. of metal slide gates, weirs, and miscellaneous metalwork; and other work. Completion time 465 days. For particulars, address Bureau of Reclamation, Ephrata, Washington; or Building 53, Denver Federal Center, Denver, Colorado.

UNITED STATES DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION. NOTICE IS HEREBY GIVEN that sealed bids on Specifications No. 703C-243 for furnishing labor and materials and performing all work for the oil handling system at New Casper Substation, Kendrick Project, Wyoming, will be mailed to P. O. Box 280, Casper, Wyoming, or delivered to the office of the Bureau of Reclamation in time for the public opening at 10:30 a.m., Mountain Standard Time, April 29, 1952, at the office of the Bureau of Reclamation, Reclamation Center, Casper, Wyoming. Copies of the standard forms and of the specifications may be obtained from the following offices of the Bureau of Reclamation: Avery A. Batson, Regional Director, Building No. 46, Denver Federal Center, Denver, Colorado; and L. J. Matthews District Manager, P. O. Box 280, Casper, Wyoming. No charge for copies of the specifications and drawings furnished for bidding purposes; for all others $0.75 per copy, not returnable. Payments should be made by check or money order payable to the Treasurer of the United States.

UNITED STATES DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION. NOTICE IS HEREBY GIVEN that sealed bids on Invitation No. 703S-235 for furnishing and delivering switching equipment and unit substation for Bridgeport substation, Transmission Division, Nebraska, Missouri River Basin Project, will be mailed to P. O. Box 280, Casper, Wyoming, or delivered to the office of the Bureau of Reclamation in time for the public opening at 10:30 a.m., Mountain Standard Time, April 22, 1952, at the office of the Bureau of Reclamation, Reclamation Center, Casper, Wyoming. Copies of the standard forms and of the invitations may be obtained from the following offices of the Bureau of Reclamation: Avery A. Batson, Regional Director, Building No. 46, Denver Federal Center, Denver, Colorado, and L. J. Matthews, District Manager, P. O. Box 280, Casper, Wyoming. No charge for copies of the invitations furnished for bidding purposes; for all others $0.25 per copy, not returnable. Payments should be made by check or money order payable to the Treasurer of the United States.

READ THE OFFICIAL PROPOSAL COLUMNS OF ENGINEERING NEWS-RECORD THIS WEEK AND EVERY WEEK

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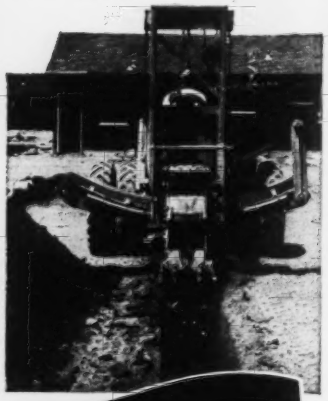

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State credit buys low Thruway interest

With the full effect of the state's credit behind it for the first time, New York's Thruway Authority sees prospects of fast work for its 535-mile superhighway, after bidders last week agreed to take $60 million of the Authority's bonds at an interest rate of 1.1%.

The rate was about the same as the average for other New York State loans, but below the 1.5% rate on the only previous Thruway loan (issued before voters last year approved a constitutional amendment permitting state credit back of the authority.)

Almost none of the $60 million will go for construction work: Part will be used to retire the earlier bond issue (used to purchase bridges near Buffalo), and part to repay advances of state funds over the past several years to finance planning and get some construction started.

But Bertram D. Tallamy, Thruway authority chairman, saw the low interest rate as an immediate spur to further work on the superhighway—pointing out that financing costs on the $500 million in bonds authorized would be greatly reduced, thus making more funds available quickly for construction. Low financing costs also may reduce toll charges needed to put the Thruway on a paying basis, once opened for traffic.

• **Not lowest**—Although newspaper reports hailed the interest rate as lowest ever obtained by the Authority, officials of the 22 private and commercial banks that bought up the bond issue pointed out it was lowest for one reason: It is the first such bond issue floated by the authority.

The bankers added that the interest rate on the bonds is not comparable in New York State, since this is the first short-term paper (maturing Sept. 30, 1953, but prepayable after April 30, 1953) issued with state backing in some years.

However, some other states—notably Massachusetts—have obtained still lower interest rates on general-purpose bonds. Massachusetts recently got an .80% rate.

But the bankers generally agreed with Mr. Tallamy that the acceptance with which the bonds were met, augurs well for future offerings of Thruway obligations.

However, there was one caution in the bankers' attitude: The possibility that floating as much as $500 million in bonds with state credit might raise the general level of interest to the state. Time will have to provide the test of that possibility.

Technicality blocks sale of $167 million bonds

Afraid that a legal technicality may remove the most important factor—government support—from behind the bond issues, the Federal Public Housing Authority has cancelled a scheduled offering of $167 million in housing authority bonds.

The bonds would have been sold April 15 (ENR April 3, p. 39) and the sale—second such offering of the current year—was looked upon as a further test of the strength of the market for municipal issues.

By the same token, the reason for the postponement was of major importance. It was contained in a rider attached by the House to the Independent Offices appropriations bill, which would have the effect, FPHA thought, of removing government support from the bond issues. Under present law, FPHA must see to it that the local agencies meet their obligations, even if FPHA contributions are necessary.

• **Rider trouble**—However, the House rider forbade annual contributions to local housing authorities "which allow occupancy by any person belonging to an organization declared subversive by the Attorney General."

Careful examination of this language, FPHA said, discloses that it is so worded as to have the effect of casting a technical doubt on the availability of funds to meet the unconditional obligation of the Federal government.

So, said FPHA, until either the Senate knocks out the rider, or the language is interpreted further, there'll be no sale of the housing authority bonds. The agency obviously doesn't want to try to police the hundreds of housing authorities involved.

Unique financial deal may speed new park

The San Diego City Council has voted to attempt a unique financial arrangement with the Army Corps of Engineers in an attempt to speed completion of its $20-million Mission Bay Aquatic Park.

The project is being financed partly as a Corps of Engineers flood control project for the San Diego river, partially by state funds and partially by the city (ENR Jan. 18, 1951, p. 45).

The Corps of Engineers built a new channel for the San Diego river which formerly emptied into the bay, and utilized the old mouth of the bay as the entrance to the flood channel. Then a new entrance to the bay was dredged, but the work was only partially completed when advent of the Korean crisis brought a suspension of appropriations by Congress for the authorized project. The Mission Bay entrance was used for a time by small boats, but after a series of drownings resulting from Aquatic accidents the city council several months ago closed the mouth of the bay to navigation.

The council now has decided to offer to advance the Corps of Engineers the $690,000 cost of dredging the entrance to a safe depth for navigation. If the offer is accepted the city of San Diego will initiate a bond election to raise the funds.

Connecticut starts payoff on home loan scheme

Connecticut this week began paying off the first $1 million of $60 million in short-term notes outstanding under the state's program of loans to prospective home owners.

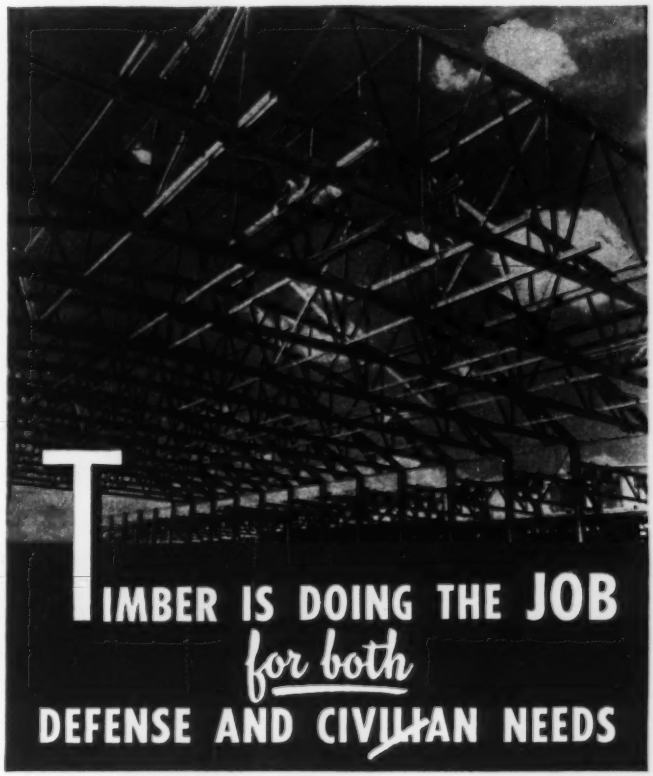
Under the scheme—in operation for nearly two years—the state borrows money from banks and investment houses at rates approximating 1⅛%, and loans these funds to home owners at about 1½%. The state's borrowings are made on a one-year basis—thus short-term notes falling due shortly will be replaced by new notes, for a total of $59 million.

Finance briefs . . .

• **FNMA spending limited**—Because purchases and commitments have reached the statutory limit, mortgage purchases by the Federal National Mortgage Association starting this week will be held to disaster, military, and defense housing mortgages included in outstanding commitments or qualified for purchase over counter.

• **Parking meter bonds**—Kentucky legislators have approved a measure that would permit cities to establish parking lots through revenue bonds payable from meter receipts.

• **Maryland program**—The Maryland legislature has approved bills authorizing issuance of $23.5 in bonds for a new state office building at Baltimore and Annapolis, and improvements at state hospitals and other institutions.



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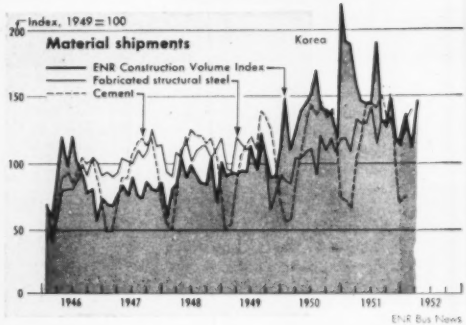

ENR Bar Rates

Contracts jump to $1 billion

Anticipating the traditional opening of construction activity, contract awards reported by ENGINEERING NEWS-RECORD for March spurted up to $1,043 million—a 32% jump over February.

Bellwether of the rise was private construction, which accounted for $549 million in contracts, 33% over February, as owners anticipated relaxation in strictures on their work with the apparent improvement in supply of metals (ENR April 3, p. 32). All the major categories that combine to make the total of private work reported by ENR were up for the month: Private housing, at $243 million, was 32% above February; industrial buildings, at $202 million, was 28% over February; commercial construction (other than housing) was $52 million, 42% over the previous month.

• **Public work up too**—Contracts for public work kept up a high pace too. They reached a total of $494 for the month, up 32% over the previous period—taking all types of public works up, excepting unclassified.

Biggest increases were recorded for street and road building and public housing—streets and roads accounting for $101 million in contracts, 73% over February; and public housing, at $105 million, up 85% over February.

Public building (excluding housing) totalled $133 million this month, a 15% increase; public unclassified, at $55 million, was 19% under for this month.

• **Regional analysis**—All sections of the U. S. excepting the Mid-Atlantic area showed higher volume in March than in February. The area west of the Mississippi (excluding the Far West), led the nation with $330 million new contracts, representing a 57% gain over February. The South was second, with a total of $210 million, for a net gain of 24%.

• **Where it happened**—Big increases in major types of construction were general. In private housing, for instance, every region but the Mid-Atlantic showed up well.

Most significant development in the contract award picture is the fast step-up in awards of contracts for private housing. Awards in the last three months total $690 million, up 34% from a year ago.

("Construction Business," p. 124)

ENGINEERING CONSTRUCTION CONTRACTS—MARCH, 1952

ENGINEERING NEWS-RECORD *reports continental U. S. Construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation,* $34,000; *other public works,* $60,000; *industrial buildings,* $82,000; *other buildings,* $300,000

Four Weeks—Thousands of Dollars (000 Omitted)

	March 1952							U. S. Cumulative Three Months		% Change	Canada March
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	1952	1951	'51 to '52	1952
Public Works											
Waterworks	366	3,283	3,552	2,451	8,537	1,785	19,974	65,363	62,220	+ 5	555
Sewerage	933	2,486	4,291	1,714	4,288	3,760	17,472	49,957	81,603	−39	437
Bridges	721	9,703	2,772	4,358	8,136	2,298	27,988	67,575	66,160	+ 2	394
Earthwork and waterways	71	1,135	6,036	650	18,249	7,750	33,900	99,120	83,271	+19	.....
Streets and roads	3,169	15,991	16,530	22,048	30,278	13,186	101,202	266,924	232,788	+15	.....
Public buildings, residential	13,567	8,389	53,418	6,312	22,324	681	104,691	236,335	163,112	+45	.....
Other public buildings	12,644	13,033	13,481	19,190	52,044	22,861	133,253	386,866	638,089	−39	2,934
Unclassified	146	6,406	10,470	4,525	26,953	6,476	54,976	169,007	117,587	+44	14,864
Total public	31,617	60,426	110,550	61,257	170,809	58,797	493,456	1,341,147	1,444,830	− 7	19,184
Federal government (included in above classifications)	288	9,852	22,811	8,175	66,604	20,503	128,233	434,852	533,187	−18	15,088
Private											
Bridges		9,000					9,000	9,840	2,438	+304	.....
Industrial buildings	649	2,387	29,501	29,724	69,271	70,651	202,183	698,060	1,509,490	−54	29,895
Com'l. buildings, residential	6,625	74,922	54,773	40,455	51,286	15,150	242,911	690,074	514,904	+34	2,630
Other commercial buildings	1,000	26,655	8,219	9,889	4,587	1,882	52,232	121,455	182,741	−34	350
Unclassified		167	6,515	1,650	34,349	388	43,069	167,502	290,010	−42	5,250
Total private	8,274	112,831	99,008	81,718	159,493	88,071	549,395	1,686,931	2,499,583	−33	38,125
Total Engineering Construction:											
March, 1952—4 weeks	39,891	173,257	209,558	142,975	330,302	146,868	1,042,851	.....	.....	.....	57,309
February, 1952—4 weeks	23,611	178,956	169,434	97,332	210,011	109,085	788,429	.....	.....	.....	49,946
March, 1951—5 weeks	30,456	171,871	312,749	261,266	476,449	153,665	1,406,456	.....	.....	.....	49,725
Three Months—1952	96,942	540,068	734,391	458,163	856,467	342,047	.....	3,028,078	.....	−23	266,018
Three Months—1951	93,521	761,443	902,002	711,245	1,048,780	427,422	.....	.....	3,944,413	....	244,839
% Change '51 to '52	+4	−29	−19	−36	−18	−20	.....	.....	.....	.....	+9

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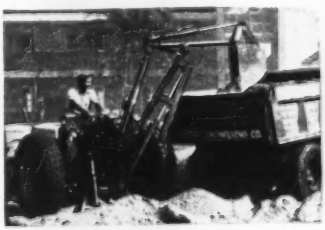

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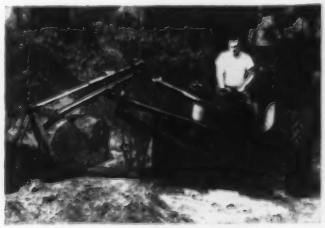

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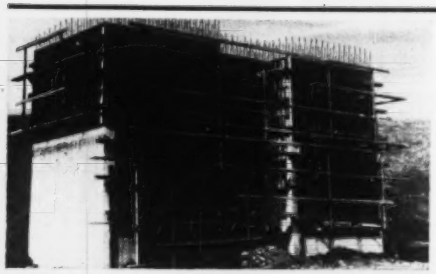

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Construction Business . . .

Foreign steel moves

With prospects of increasing supplies of domestic U.S. steel products by the end of this year, foreign steelmakers are fighting to hold their competitive position. They hastened last week to try to refute the view—held by many U.S. construction people—that their steel does not match the domestic product.

For the steelmakers of Europe this is a serious situation—particularly in view of the larger market their products have found in the United States under the spur of the shortages of the domestic product due to defense efforts of the past two years. Sales in the U.S. in 1951 (ENR Feb. 21, p. 58) jumped more than five times over the pre-Korea normal, to reach a total of about 2.5 million tons—of which about 435,000 tons was in structurals and about 140,500 tons in reinforcing bars.

Although the price of foreign steel has been (and remains at the moment) roughly 50% above domestic prices, the fact that some of it has been available when domestic steel was not, has helped its acceptance. An added spur was an NPA ruling a month ago that such foreign steel can be purchased and used by contractors, provided its use does not entail greater use of copper and aluminum.

• **Charges**—The reasons for the dubious looks of U.S. contractors and steelmen toward foreign steels are, briefly: The foreign steels are Bessemer produced; most structurals are produced to metric measures, thus throwing out standard tables for computing strengths; control of quality, it is charged, has been far from uniform; prices are high.

Added to these points is a major question: Why, if Europe must continue to import steel from the U.S., does it also have any surplus to export back to the U.S.?

• **Answers**—To the defense of foreign steelmakers (some of the biggest of whom are in Belgium and Luxembourg) comes Leon G. Rucquoi, formerly editor of the influential "L'Ossature Metallique" of Brussels, Belgium, and now consultant in the U.S. to the steelmakers and metal working industries of the two countries.

Says Rucquoi:

"It is true that most imported structural shapes and reinforcing bars are of basic Bessemer grade (Thomas steel), but this steel, in most appli-

to hold U.S. market

LEON RUCQUOI—He defends foreign steelmakers.

cations, is comparable to the open-hearth grades normally produced in the U.S. Sulfur content is kept under the same limits as in the open-hearth product. As for phosphorus, this element should not exceed in ladle analysis, according to the specification A7-49T of the ASTM, .06% for acid open-hearth steel, .04% for basic open hearth steel, and .11% for acid Bessemer steel. It is significant that phosphorus content in Thomas steel is generally lower than .06%.

"European mills control the chemical analysis and physical characteristics within strict limits."

And he adds a caution: The purchaser of foreign steel should exercise precaution to ascertain that he deals with authorized agents of known mills and importers, and not with speculators, of which, he said, the Korean action has produced "a very colorful crop."

• **What about sizes?**—"While European shapes are more readily available in metric sizes," he added, "Continental mills roll a wide range of I beams, channels, angles and bars in American and British standard sizes, and they all supply reinforcing bars to inch sizes.

"For example: our mills can supply all plain bars, such as rounds, squares, flats, half rounds, strip and hoops, in inch sizes. Also, all plates and sheets; standard H columns from 6 to 12 inches, with many sections of broad flange beams available in

(Continued on next page)

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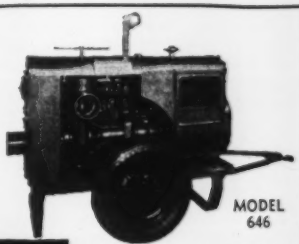

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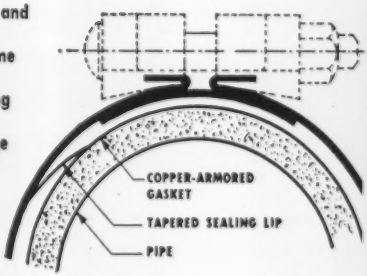

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Construction Business . . .

metric sizes which can be used to advantage where a thicker web and heavier weight is desirable; deformed reinforcing bars from ⅜ in. to 1¼ in. the bamboo, and also high bond type to ASTM specification A 305 50; sheet piling in many different designs; rails; structural shapes; and many others."

● **Prices**—True enough, Rucquoi comments, prices are higher for European-produced steel than for the domestic product.

"But quotations for steel in Europe do not present a pattern of stability at all comparable with that of the U. S. European mills are largely dependent on their exports; 65% to 80% of the production of steel mills in Belgium and Luxembourg is normally tagged for export.

"The result is that their quotations are tied with world markets and their fluctuations. In times of regression—as in the first half of 1950—prices collapse and mills are compelled to accept severe sacrifices in their pricing. Of course, when the pendulum swings the other way, export prices rise in proportion to world demand."

● **Import and export**—"While the Economic Union of Belgium-Luxembourg, which has always ranked as a leading—and often the largest—seller of steel on world markets, exported to the United States a little over $75 million worth of steel mill products during 1951, in the same period (with the Belgian Congo) it imported $1.2 million worth from the U. S.

"But the exports to the U. S. were mainly billets, structural shapes, reinforcing bar, merchant bar, plates, wire and other carbon steel standard semi-finished or finished products. The imports from the U. S. were mainly special and alloy steel, tool steel, tin plate, and special grades of steel sheets, which are not made—or are not in sufficient quantity—in Europe."

● **Addenda**—As to uses of foreign steel in the Western Hemisphere, most recent uses of large amounts of structurals was last year in Canada. The Ontario Hydro commission purchased 10,812 metric tons of broad flange beams for use in a five-mile tunnel for added power development at Niagara Falls; and the Toronto Transit Commission purchased 960 tons of broad flange columns for heavy bearing piles in construction of its subway system.

Bids Asked—Low Bidders—Contracts Awarded—First Section

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.
ELSIE EAVES, Manager *J. A. MAHONEY, Reports* *M. R. ROESSLER, Statistics*

NEW ENGLAND

BIDS ASKED—BUILDINGS

▲ **Mass., Spencer**—MONASTERY IMPRVS.—B.A. 4/15—At office Harry L. Meadham Assoc., archts., N. Main St., Millbury, excav., foundation, drainage, rough grading for church, library, refectory addn. incl. professed choir dormitory, chapter house, lay brothers chapter house, cloister, lay brothers dormitory and cloister, for St. Joseph's Abbey, Rt. Rev. Edmund Futterer, OCSO Abbot, Ala Crest Rd., Spencer. CD 3/27.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **M. S. Kelliher Co.**, 294 Washington St., Boston, Mass. CA $1,778,465, est. $1,400,000. 150 HOUSING units, Proj. Mass 2-10, Pope's Hill Sect., Dorchester, BOSTON, MASS. Boston Housing Auth., 230 Congress St., Boston, Mass. CD 3/26, under LB.

▲ **J. Slotnick Co.**, Chauncey St., Boston, Mass. LB $1,549,000. HOUSING, Proj. PHA 1-2, Chelmsford St., LOWELL, MASS. Lowell Housing Auth., 18 Market St., Lowell, Mass. Bids Mar. 21. CD 3/6.

▲ **Green Acres, Inc.**, c/o Lewis Beekanstein, 1122 Main St., Hartford, Conn. Owner Builds. $1,500,000. 26x42 ft. HOMES. EAST HARTFORD, CONN.

MIDDLE ATLANTIC

BIDS ASKED—BUILDINGS

N. Y., White Plains—SCHOOL—B.A. 4/14—Bd. Educ., 279 Hamilton Ave., Ridgeway School. $815,000.

▲ **Md., Baltimore**—SCHOOL—B.A. 4/16—City, Bureau Bldg. Constr., 410 Municipal Bldg., 1, 2 and 3 story, 370x385 ft., brick, block, steel irregular shape Cherry Hill Colored Junior High School, $1,600,000. Plans deposit $100, Gaudreau & Gaudreau, 330 N. Charles St., Baltimore, archts. ⚠ L. Falsant & Assoc., 21 W. 25 St., struct. engrs. Egli & Gompf, Inc., 1019 N. Calvert St., mech. engr. CD 11/23.

▲ **N. Y., New York**—HOSPITAL—B.A. 5/14—Dpt. P. Wks., Municipal Bldg., Zone 7, East Bronx General Hospital, Pelham Parkway. $16,461,000. CD 2/4/43.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

B. Turecamo Coutr. Co. Inc., Belt Parkway at foot of 24 Ave., Brooklyn, N. Y., CA. $923,243, Cont. No. CIP-1, widening Cross Island Parkway with 2 additional concrete paved lanes from 147 St. to Lawrelton Parkway, Queens Boro, NEW YORK. Triborough Bridge & Tunnel Auth., Administration Bldg., Randall's Island, New York 35, N. Y. Bids Mar. 25. CD 3/14.

Tufano Constr. Corp., 32-17 Lawrence St., Flushing, N. Y., LB $508,053, repairing 3 areas of Runway C, southwest of intersection of Runway C with Runways B and V at New York International Airport, Cont. NYA-270.004, IDLEWILD, N. Y. Port of New York Auth., 111 Eighth Ave., New York 11, N. Y. Bids Mar. 21. CD 3/7.

▲ **NEW JERSEY**—State Hy. Dpt., State Hy. Office Bldg., Trenton.

American Bridge Co., 71 Broadway, New York, N. Y., LB. $4,734,701, construct superstructure for bridge over Hackensack River on State Hy. Route 25 between Jersey City and Kearny, Fed. Aid Proj AU 192 (2), Hudson Co. Bids Apr. 1. CD 2/25.

NEW JERSEY—State Hy. Dpt., State Office Bldg., Trenton.

Louis Zimmerman, Jr., 285 Florence Ave., Hillside, N. J., LB $534,769, constr. 0.695 mi. Route 4 Parkway, Section 9C (2) from Burke Parkway to Route 29 grading, Township of Union, Fed. Proj. U-188 (25), Union Co. Bids Apr. 1 CD 3/13.

DELAWARE—State Hy. Dpt., Dover.

James Julian, Elsmere, Del., LB, $1,457,686, Alt. "A" $1,261,061, Alt. "B" Contr. 843 divided hy. 24 ft. roadways, 5.85 mi. hot mix asph. pavement, c. conc. pavement Canterbury to Camden, Fed. Aid Proj. F-SF-10 (5) Kent Co.;

Walter Roach & Sons, Georgetown, Del., LB, $68,167 Contr. 1085, 20 ft. stabilized earth and surf, treated road 3.458 mi. Ocean View to Bethany Beach Fed. Aid Proj. S-117 (1), Sussex Co. Bids Mar. 28. CD 3/12.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Grove, Shepherd, Wilson & Kruge, Inc.**, 247 Park Ave., New York 17, N. Y., LB $4,453,135, general constr.;

Nager Electric Co., Inc., 426 Broadway, Brooklyn 11, N. Y., LB $213,000, electrical work;

Almirall & Co., Inc., 53 Park Pl., New York 7, N. Y., LB. $83,000, heating and ventilating;

Gasman Plumbing & Heating Corp., 327 Hicks St., Brooklyn 2, N. Y., LB $62,847, plumbing for work in connection with construction of South Shore Destructor Plant bounded by Forbell St., Wortman St., Ruby St. and Cozine Ave., BROOKLYN, N. Y. Dpt. P. Wks. Municipal Bldg., New York 7, N. Y. Bids Mar. 28.

▲ **George F. Driscoll & Moccia Constr. Corp.**, 41 E. 42 St., New York 17, N. Y., CA $5,672,670, general constr.;

Raisler Corp., 129 Amsterdam Ave., New York 23, N.Y. CA. $766,700, heating and ventilating;

Jesse E. Kahn, Inc., 131 W. 21 St., New York 11, N.Y. CA $693,479, plumbing for Van Dyke HOUSES, Proj. No. BG 5-13, Sect. I, incl. Bldgs. Nos. 1 to 13 (inclusive) in area bounded by Sutter Ave., Powell St., Blake Ave., Stone Ave. and by Blake Ave., Christopher St., Dumont Ave. and Stone Ave., BROOKLYN, N.Y. New York City Housing Auth., 63 Park Row, New York 7, N.Y. Grand total $7,132,849. Bids Jan. 18. CD 1/22, under LB.

Cage Constr. Co. Inc., 356 Fulton St., Brooklyn 1, N.Y. LB $849,800, Redfern HOUSES, Proj. No. NYS-55, Sect. II, incl. Bldgs. 6 and 7, in area bounded generally by Nassau County line, Jeannette Ave., Dabney Ave., Hassock St. and Redfern Ave., Queens Boro, FAR ROCKAWAY, N.Y. New York City Housing Auth., 63 Park Row, New York 38, N.Y. Bids Mar. 18. CD 2/25.

▲ **White Oak Terrace Apartments**, c/o Samuel Paul, archt., 163-18 Jamaica Ave., Jamaica, N.Y. Owner Builds. Approx. $1,300,000. four 5 story BUILDINGS, for 160-families, White Oak St. off North Ave. and Eastchester Rd., NEW ROCHELLE, N.Y.

▲ **Corbetta Constr. Co.**, 220 E. 42 St., New York 17, N.Y., CA $4,859,000, general contract;

Heating Maintenance Corp. of New York, 220 E. 138 St., New York 51, N.Y. CA $659,860, heating and ventilating;

Far Plumbing Co., 2018 Crotona Parkway, New York 60, N.Y., CA $566,600, plumbing for Baruch HOUSES, Proj. NY 5-12, Sect. I, incl. Bldgs. 1, 2, 3, 4, 5, and 7 in area bounded by Franklin D. Roosevelt Dr., Delancey St., Baruch Pl., Stanton St., southerly portion of block bounded by Lewis, Rivington, Stanton Sts. and Baruch Pl. and block bounded by Franklin D. Roosevelt Dr., Stanton, Mangin and E. Houston Sts., Manhattan Boro, NEW YORK, N.Y. New York City Housing Auth., 63 Park Row, New York 38, N.Y. Grand total $6,085,360. Bids Feb. 8. CD 2/19, under LB.

▲ **Buxton Homes**, c/o Teas & Steinbrenner, archts, Homeland Bldg., Malverne, N. Y. Owner Builds. Approx. $2,000,000. 240 HOUSES on 50 acre site at Wantagh Ave. and Southern State Parkway, WANTAGH, N.Y.

▲ **Saye Constr. Co.**, c/o Morris Rothstein & Son, 186 Joralemon St., Brooklyn 21, N. Y. Owner Builds. $1,725,000, 6 story APARTMENT, Wallace Ave., north of Brady Ave., NEW YORK, N. Y. CD 1/2.

▲ **Arthur Venneri Co.**, 300 North Ave. E., Westfield, N. J. CA, $5,174,000 general contract;

Astrove Plumbing & Heating Co., 33-66 12 St., Long Island City, N. J., CA, $706,000 plumbing;

E. J. Wohrle, Inc., 15 Bergen Blvd., Fairview N. J., CA $389,890, heating;

John C. Morris & Co., 206 Beacon Ave., Jersey City, N. J., CA, $454,176, electrical work, HOUSING, Project N.J.9-9 on Duncan Ave., JERSEY CITY, N. J. Jersey City Housing Auth., 514 Newark Ave., Jersey City, N. J. Bids Jan. 1. CD 1/16.

▲ **Gardens Constr. Co.** 2107 N. Charles St., Baltimore, Md. CA $2,420,958, est. $1,250,000. 3 story, 40x470 ft. with 4 wings 32x160 ft., brick, rein.-con. steel Patuxent INSTITUTE for Defective Delinquents, JESSUPS, MD. State, Dpt. P. Imprvts., 506 Park Ave., Baltimore, Md. CD 3/4, under LB.

▲ **Cogswell Constr. Co.**, 513 Park Ave., Baltimore, Md. LB $1,337,900, est. $1,250,000. brick, concrete irregular shape MEDICAL and SURGICAL BLDG., Springfield State Hospital, SYKESVILLE, MD. State, Dpt. P. Imprvts., 506 Park Ave., Baltimore, Md. Bids Mar. 27. CD 3/11.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Tenn., Nashville**—B.A. After 6/1—City, City Hall, sewage disposal plant. $11,000,000. Hart, Freeland & Roberts, 3rd Natl. Bank Bldg., and Polk, Powell & Hendon, Stallings Bldg., Birmingham, Ala., engrs. CD 3/28.

BIDS ASKED—BUILDINGS

▲ **Miss., Meridian**—PLANT—B.A. After 4/7—At office Alfred Benberg, archt.-engr., 4550 Main St., Kansas City 2, Mo., 1 story, bsmnt., 255x265 ft., rein.-con., brick masonry dryer bldg.; 1 story, 127x170 ft. tunnel kiln bldg.; 1 and 2 story, 120x265 ft. press room, moulding room machine shop, etc., 1 story, 90x125 ft. clay storage bldg. and grinding room. To be leased and operated by W. S. Dickey Clay Manufacturing Co., Commerce Trust Bldg., Kansas City, Mo., $1,650,000.

N. C., Winston-Salem—JAIL—B.A. 5/1—Bd. Comrs. Forsyth Co. D. C. Speas, chn., Court House, jail, $500,000. Plans deposit $50. J. L. Williams & Assoc., Marion, Va., archts. CD 11/27, under LB.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

NORTH CAROLINA—State Hy. & P. Wks. Comm., Raleigh.

Propst Constr. Co. Inc., Concord, N. C., CA. $602,621, on Proposition 2, subgrade reinf. and c. conc. pavement or stabil. aggregate and bit. surf. tr. 16.55 mi. U. S. 29, Proj. 6587, Mecklenburg and Cabarrus Counties. Bids Mar. 25, awarded Apr. 1. CD 3/28, under LB.

† **Wright Contg. Co.**, 504 25 Ave., Columbus, Ga., LB $867,657, constructing streets, water lines, sanitary and storm sewers at Marine Corps Depot of Supplies, NOY 70665, ALBANY, GA. Dpt. Navy, Officer in Charge of Construction, Box 365, Naval Base, S. C. Bids Mar. 27. CD 2/6.

MISSISSIPPI—State Hy. Dpt., T. C. Robbins, dir., Jackson.

Cook Constr. Co., Hy. 80 W., Jackson Miss. CA $893,439. Drainage, culverts, bridge 10.968 mi. on US. Rte. 90 between Pascagoula and Alabama line Proj. FI 003 (15), Jackson Co. Awarded Mar. 25. CD 3/24, under LB.

LOUISIANA—State Hy. Dpt., Highway Office Bldg., Baton Rouge.

T. L. James & Co., Inc., Ruston, La. CA $998,789, grading, paving 13 mi. Lake Bruin-Somerset Hy. State Rte. 3, S.P. 20-04-11, F. A. Proj. F-67, Tensas Parish. CD 3/18 under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Jack I. Bender Co., Inc.**, 33 E. St. S. W. Wash. D. C., CA $1,294,000, construct, manage, finance, 158 HOUSING units in Williams Court extens., PORTSMOUTH, VA. P. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va. Bids Mar. 24. CD 2/19.

▲ **The Beers Constr. Co.**, 70 Ellis St. N. E., Atlanta, Ga., LB, $1,692,983, DORMITORY and STUDENT ACTIVITY CENTER at University of Florida, GAINESVILLE, FLA. Bd. Control, Tallahassee, Fla. Bids Mar. 28. CD 313.

▲ **Consolidated Engineering Co., Inc.**, 20 E. Franklin St., Baltimore, Md. CA. Approx $17,000,000. Cracking Catalyst PLANT, LAKE CHARLES, LA. Davison Chemical Corp., Davison Chemical Bldg., Baltimore, Md. Day & Zimmermann, Inc., 1700 Samsom St., Phila., Pa., archt.

▲ **Fort Knox Constr. Co.**, Fort Knox, Ky. CA $2,000,000. SHOPPING CENTER, incl. 8 story, 200 unit APARTMENT, FORT KNOX, KY. Midwest Mortgage & Finance Co., 2545 Third St., Louisville, Ky. CD 8/28/51.

▲ **Frank Messer & Son**, Paddock Rd., Cincinnati, O., LB, $1,415,900 brick, steel, concrete HOSPITAL, Highland Ave., FORT THOMAS, KY. Campbell County Hospital City Bldg., Fort Thomas, Ky. Wm. F. Bodenstein & W. W. Shuster, Second National Bank Bldg., Cincinnati, O., consult. engrs. Bids Mar. 26. CD 3/7.

▲ **Sullivan & Cozzart**, 822 W. Kentucky St., Louisville, Ky. CA $1,000,000. 80x260 ft., 35 ft. high concrete, brick, steel, PLANT to mfg. linings for steel furnaces, LOUISVILLE, KY. Corhart Refractories Co., 1600 W. Lee St., Louisville, Ky. Awarded Feb. 19. CD 2/20, under LB.

▲ **John Martin Co., Inc.**, 610 W. Manning St., Chattanooga, Tenn., LB $1,992,882, Howard HIGH SCHOOL, CHATTANOOGA, TENN. City, City Hall, Chattanooga, Tenn. Bids Mar. 25. CD 3/14.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Ind., Indianapolis**—B.A. 4/28—Bd. P. Wks., City Hall, Zone 4, E. 34 St. Min Sewer, east of Temple Ave. to Forest Manor Ave. and E. 32 St., rein.-con., concrete and vit. pipe. $1,400,000. Plans deposit $50. W. R. Hunt, City Hall, city engr. CD 8/41.

BIDS ASKED—BUILDINGS

▲ **Ill., Oak Park**—Y.M.C.A. BLDG.—B.A. 4/22—Young Men's Christian Assn., Oak Park, 4 story, brick, rein.-con Y.M.C.A. Bldg., $1,600,000. Philip Duke West, 33 E. 1 St., Hinsdale, Ill., archts. CD 8/12/49.

Wis., Oconomowoc—HOSPITAL—B.A. 4/22—Lutheran Memorial Hospital Assn., R2, Oconomowoc, 2 story, bsmnt., L-shaped 100x120 ft., 50 bed, rein.-con.,

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brick hospital, $935,000. E. A. Stubenrauch, 710 Erie Ave., Sheboygan, archt. CD 8/15/49.

▲ Mich., Northville—THERAPY and LAUNDRY—B.A. 4/29—State, A. N. Langius, dir. State Bldg. Dpt., 2 story, rein.-con. therapy unit for industrial patients $1,000,000; rein.-con. laundry unit, $400,000. Northville State Hospital. Plans deposit $25, O'Dell, Hewlett & Luckenbach, 2300 Dime Bldg., Detroit, archts. CD 10/25.

▲ Mich., Birmingham — CHURCH — Bids Asked — First Presbyterian Parish, 388 N. Woodward St., 2 story school, W. Maple St., Total est. $1,000,000. Harold H. Fisher Assoc., 1605 Industrial Bank Bldg., Detroit, archts. CD 9/7.

▲ O., Youngstown—Y.M.C.A. BUILDING—Bids Asked —Young Mens Christian Assn., 17 N. Champion St., 7 story addn., Central Y.M.C.A. Bldg., N. Champion St. $1,000,000. CD 1/15/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ OHIO—State Hy. Dpt., T. J. Kauer, dir., Columbus, Zone 15.

Visintine & Co., 1315 Edgehill Rd., Columbus, O., CA $1,718,000, est. $1,834,500, c. conc. paving, construct grade crossing elimination with Pennsylvania R.R. Co., incl. 47 ft. span, 32 ft. wide steel beam bridge with concrete substructure, Bridge No. DA-127-182 carrying tracks of the Pennsylvania R.R. over U.S. Rte. 127; 44 ft., 55 ft. and 44 ft. spans, 40 ft. wide roadway continuous steel beam bridge with concrete deck and substructure over Stillwater River, Bridge No. DA-127-200; grade crossing elimination of the New York Central R.R. Co., incl. 60, 75, and 75 and 60 ft. spans, 28 ft. wide roadway continuous steel beam bridge with concrete deck and substructure, Bridge No. DA-127-222 over New York Central R.R. and Township Rd.; continuous steel beam bridge with concrete deck and substructure, 30 ft., 37 ft. and 30 ft. spans, 40 ft. roadway, over Indian Creek, Bridge No. DA-127-243, Sect. 17.31. F-578 (7), Darke Co.;

Knox Paving Co., 801 Gas & Electric Bldg., Dayton, O., CA $163,325, est. $171,600, b. conc. resurf. 5.94 mi. U.S. R. 40 (Sects. 18.56-23.94). Franklin Co.;

Ohio Asphalt Paving Corp., 823 Prospect St., Portsmouth, O., CA. $178,205, c. conc. base wid'n. and b. conc. surf. 2.426 mi. U.S. R. 52, Sect. 0.00. Lawrence and Scioto Counties. Grand total $2,059,530. Bids Mar. 25. CD 3/12.

▲† The R. C. Mahon Co., 6565 E. 8 Mi. Rd., Detroit, Mich., LB $1,357,354 for one hangar; $2,074,208 for 2 hangars, fabrication and erection of steel frame for one or two maintenance hangars with cranes, monorails and steel doors, Lockbourne Air Force Base, Serial No. ENG 46-022-52-113, COLUMBUS, O. U. S. Eng., 237 Fourth Ave., Huntington 18, W. Va. Bids Mar. 28. CD 3/19.

S. N. Nielsen Co., 3059 W. Augusta Blvd., Chicago 12, Ill., LB, $990,000, Second stage water filtration works, filter bldg., GARY, Ind. Gary-Hobart Water Corp., 545 Broadway, Gary, Ind. CD 11/17/49.

▲ ILLINOIS—State Div. Hys., Springfield.

Maclair Asphalt Co., Inc. 6000 Collinsville Rd., East St. Louis, Ill., CA, $710,582, bit. resurf. 10.44 mi. and 9.12 mi. bit. resurf. and patching Ill. 15 and bit. resurf. 7.91 mi. Ill. 43 St. Clair and Clinton and Washington Counties;

Standard Paving Co., 30 N. La Salle St., Chicago, 2, Ill., CA, $1,152,384, c. conc. 6.23 mi. U. S. 40 Clark Co. Bids Mar. 14, awarded Mar. 31. CD 3/19, under LB.

▲ ILLINOIS—State Div. Hys., Springfield.

H. H. Gunther Constr. Co., 600 E. Main St., Galesburg, Ill., LB, $272,531, bit. resurf. 12.74 mi. U. S. 150 LB, $241,042, c. conc. 10.99 mi. base course wid'n. U. S. 150, Peoria and Knox Counties;

S. M. H. Constr. Co., 1500 N. Adams St., Peoria 3, Ill., LB, $314,077, c. conc. 1.06 mi. Ill. 88; LB $186,063, c. conc. base course wid'n. 7. 72 mi. both Peoria Co.;

Maclair Asphalt Co., 6000 Collinsville Rd., East St. Louis, Ill., LB, $131,682, bit. resurf. 4.42 mi. Ill. 127, Clinton Co.;

McCalman Constr. Co., 619 Secton St., Danville, Ill., LB, $536,629, c. conc. 4.91 mi. Ill. 1 and U. S. 150, Edgar Co.;

Chas. G. Gilmore Asphalt Products Inc., Anna, Ill., LB, $243,450, intermittent bit. resurf. Ill. 37, 146 and U. S. 45, Johnson and Pulaski Counties;

Seneca Petroleum Co., 439 W. 33 St., Chicago 16, Ill., LB, $185,725, bit. resurf. 7.72 mi. Ill. 88, Peoria Co.;

Jefferson Asphalt Co., 1209 Casey St., Mt. Vernon, Ill., LB, $145,594, bit. resurf. 6.3 mi. U.S. 45, Effingham Co.;

Gem Contg. Paving Inc., Moose Bldg., Quincy, Ill., LB, $236,925, bit. resurf. 9.88 mi. U. S. 24, Adams Co.;

I. D. Lain Co., 1901 E. Adams St. Springfield, Ill., LB, $131,060, c.conc. base course wid'n. 9.88 mi. on U.S. 24, Adams Co.;

Mitchell Constr. Co., 216 E. Madison St., Herrin, Ill., LB, $295,402, c.conc., gravel or crushed stone base course wid'n. 1.78 mi. Ill. 14, Franklin Co.;

C. J. Moritz, Inc., Effingham, Ill., LB, $253,347, c.conc. 6.24 mi. base course wid'n. U.S. 45, Effingham Co.;

Giertz-Melahn Asphalt Co., 57 Douglas Ave., Elgin, Ill., LB, $212,923, bit. resurf. 8.98 mi. U.S. 30 DeKalb Co. CD 3/19;

Contracting & Material Co., 1235 Dodge Ave., Evanston, Ill. LB, $92,511, bit. resurf. 3.15 mi. Mi. 63, Cook Co.;

M. Hayes & Sons, 209 S. LaSalle St., Chicago, 9, Ill., LB $397,973, conc. base course, c.conc. base course wid'n. 6.31 mi. U.S. 36 and 54, Pike Co.;

Sankey Bros., Inc., 402 Illinois Bldg., Springfield, Ill., LB, $139,251, bit. resurf. 631 mi. U.S. 36 and 52, Pike Co.;

Danville Constr. Co., P.O. Box 223 Danville, Ill., LB $225,606, bit. resurf. 7.61 mi. U.S. 36, Edgar Co.;

Crown Rock Asphalt Co., 30 N. LaSalle St., Chicago, Ill. LB, $283,386, bit. resurf. 8.49 mi. Ill. 7, Cook and Will Counties. Bids Apr. 1. CD 3/24.

▲ MICHIGAN—State Hy. Comn., 2222 Townsend St., Lansing, Zone 13,

Chas. J. Rogers, Inc., 14836 Grand River St., Detroit, Mich. and Cooke Contg. Co., 1116 Penobscot Bldg., Detroit, Mich. CA $1,241,467. est. $1,320,000. drainage, paving relocation lighting, signal sys. John C. Lodge Expressway, UI 82-127 C71 (UI 404 43), Wayne Co. CD 3/26, under LB.

▲ Consumers Power Co., W. R. Caryon, mgr., 110 E. Michigan St., Lansing, Mich. Ogner Builds. $1,500,000. 20 mi. gas mains, LANSING, MICH. CD 2/12.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Maxon Constr. Co., 131 N. Ludlow St., Dayton, O., CA $1,000,000. 42,000 sq. ft., steel, brick, concrete research and development LABORATORY, 2 story, bsmnt. 54x166 ft. one bldg., one 1 story 102x150 ft. bldg., CHILLICOTHE, O. Mead Corp., 8 and Hickory Sts., Chillicothe, O. Lorenz & Williams, 233 W. 1 St., Dayton, O., archts. Awarded Mar. 27.

▲ Ferro Concrete Constr. Co., 203 W. 3 St., Cincinnati, O., CA. Approx. $3,000,000. Design and construct, 1 story, 161x325 ft., brick, steel, concrete heavy MACHINE SHOP, with provisions for cranes, rail siding parking lot, off Harrison Pike, Harrison, CINCINNATI, O. Cincinnati Shaper Co., Hopple and Garrard St., Cincinnati, O. Robert B. Schildknecht, 31 E. 4 St., Cincinnati, O., archt. Awarded Mar. 31.

▲ Thorp Constr. Co., 701 N. Main St., Evansville, Ind., CA, $1,410,500, 170 dwelling units HOUSING, Sweetzer and Garvin Aves., EVANSVILLE, IND. Evansville Housing Auth., K. Jarboe, secy., City Hall, Evansville, Ind. Bids Mar. 6, awarded Mar. 27. CD 3/17, under LB.

Fred L. Palmer & Son, Kessler Blvd. and Road 29, Indianapolis, Ind., Owner Builds, $750,000 brick, stone HOMES, INDIANAPOLIS, IND.

▲ Welso Constr. Co., 2345 S. Crawford Ave., Chicago, 23, Ill. CA, $1,000,000, 1 story, 112,500 sq. ft. FACTORY and office, CHICAGO, ILL. National Video Corp., 3109 W. 47 St., Chicago 9, Ill. A. Epstein & Sons Co., 2011 Pershing Rd., Chicago 9, Ill., archts. Awarded Mar. 20 CD 3/29/51, under LB.

▲ E. W. Sproul Constr. Co., 179 W. Madison St., Chicago 3, Ill. CA, $1,000,000, Masonry work, FACTORY with OFFICE, SKOKIE, ILL. Ohmite Mfg Co., 3601 Howard Ave., Skokie, Ill. Bids Jan. 14. CD 12/20.

▲ Beloit Production Co., 437½ E. Grand Ave., Beloit, Wis., Owner Builds, $3,500,000, 225 unit, 1 story, bsmnt., frame HOUSING, BELOIT, WIS.

▲ Foxcroft Corp., M. F. Borgman, pres., Flint, Mich. 2 story, bsmnt. frame HOMES, FLINT, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

▲† Tex., El Paso—LABORATORY—B.A. 4/17—U. S. Eng., Box 1538, Albuquerque, N. M., Contr. A, guided missile laboratory, clasroom bldg., shop, Approx. $500,000; Contr. B, outside utilities, Approx. $60,000; Contr. C, 18,000 sq. yds. hard-paved parking area and fence, $75,00. Plans deposit $100 each. Extended date. CD 2/18.

▲† Texas—B.A. 4/22—U. S. Eng., 606 Santa Fe Bldg., Galveston, dredging Gulf Intracoastal Waterway between Galveston and vicinity Bastrop Bayou, Galveston and Brazoria Counties, Inv. No. CIVENG 41-243-52-76. $1,250,000. CD 6/9/44.

Tex., Galveston—PIER—B.A. 5/15—Galveston Wharves, E. H. Thornton, mgr., 2402 Mechanic Ave., reconstruct Pier 37. $750,000. Extended date.

BIDS ASKED—BUILDINGS

Kan., Topeka — LIBRARY — B.A. 4/15 — City, library, $650,000, Griest & Ekdahl, New England Bldg., archts. CD 11/17/48.

† N. M., Los Alamos—BUILDING FACILITIES—B.A. 5/13—U. S. Atomic Enregy Comn., Los Alamos, building facilities, TA-39, Proj. "A". Inv. No. 291-52-48. $950,000. Plans deposit $50. CD 4/1.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Austin Bridge Co., P. O. Box 1590, Dallas, Tex., CA $513,971, Colorado River Bridge between South 1st St. and Guadalupe and Lavaca Sts., AUSTIN, TEX. City, City Hall, Austin, Tex. Bids Mar. 25, awarded Mar. 31. CD 3/31, under LB.

Northwestern Eng. Co. & McMillon Constr. Co., 3050 S. Huron St., Denver, Colo., LB, $764,507, est. $924,700. Valverde Storm Sewer District, storm sewers, appurtenances, DENVER, COLO. City and Denver Co. City and County Bldg., Denver, Colo. Bids Mar. 21. CD 3/11.

BUILDINGS

LOW BIDS AND CONTRACTS

Wedding Constr. Co., 3537 27 St., Des Moines, Ia., Owner Builds, $800,000, 121 RESIDENCES, CAMANCHE, IA.

S. Patti Constr. Co., Inc., 1340 Admiral St., Kansas City, Mo. LB $934,000. POWER PLANT structure,

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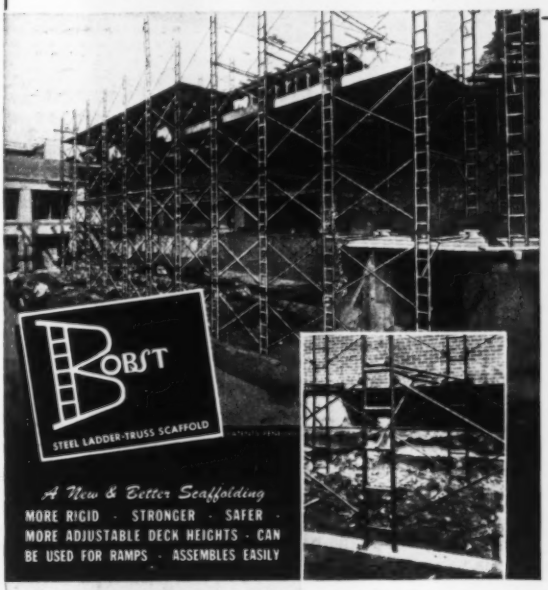
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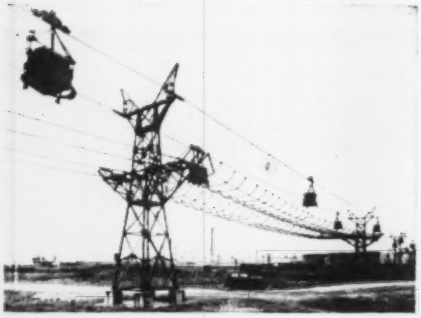

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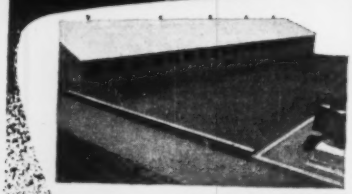

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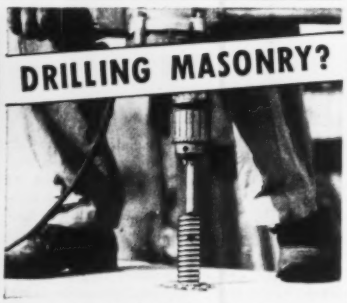

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Contr. K-19, KANSAS CITY, KAN. Bd. P. Utilities, Kansas City, Kan. Bids Mar. 19. CD 3/4.

▲ **Gamble Constr. Co.**, 804 Pine St., St. Louis 1, Mo. CA $1,750,000. 5 story, ground floor, 43x269 ft., 3 story, ground floor, 57x92 ft. wing, 2 story, ground floor, 59x110 ft. wing, brick, rein.-con., stone HOUSE OF PHILOSOPHY, Pine Blvd. and Spring Ave., ST. LOUIS, MO. Missouri Province Society of Jesus, Very Rev. Daniel H. Conway, S. J., provincial, 4511 W. Pine Blvd., St. Louis 8, Mo. CD 12/7, under LB.

▲ **Refinery Engineering Co.**, Kennedy Bldg., Tulsa, Okla. CA. Approx. $3,500,000. CATALYTIC CRACKING unit, CRUDE OIL STORAGE and REFINED OIL STORAGE, CUSHING, OKLA. Midland Co-operative Refinery Co., Cushing, Okla. M. W. Kellogg Co., 225 Broadway, New York, N. Y., engrs. Awarded Mar. 20. CD 2/19.

▲† **H. B. Nicholson, James L. Ferry & N. P. Van Valkenburg**, 880 E. Colorado St., Pasadena, Calif., CA $2,374,000, 33 to 55 earth covered Ammunition STORAGE MAGAZINES, incl. all railway lines, access roads, water lines, etc., NOY 70831, Spec. 324002, MCALESTER, OKLA. U. S. Govt., Officer in charge of Construction, Eighth Naval Dist., Bldg. 16, U. S. Naval Station, New Orleans, La. Bids Mar. 25, awarded Mar. 28. CD 4/1 under LB.

▲ **Hubbard-Hubbel & Nix**, 1507 Delano St., Houston, Tex., LB $3,854,472, est. $2,602,500, Tex 9-11-D, 56 DWELLING bldgs. for total 367 units, DALLAS, EX. Dallas Housing Auth., 2525 Lucas Dr., Dallas, Tex. Associated West Dallas Housing Architects, 2525 Lucas Dr., and Smith & Mills, Mercantile Bank Bldg., Dallas, Tex., archts. Forrest & Cotton, Praetorian Bldg. John Noyes, 3326 Shore Crest St., and Wilson & Cobb, Burt Bldg., Dallas, Tex., engrs. CD 3/24.

▲ **Manhattan Constr. Co. of Texas** and **Manhattan Constr. Co.**, 2828 Pease St., Houston, Tex., CA. $4,816,911. DENTAL SCHOOL, HOUSTON, TEX. Bd. Regents, University of Texas, 205 Main Bldg., Austin, Tex. Bids Mar. 26. Awarded Mar. 31. CD 4/1, under LB.

▲ **Monsanto Chemical Co.**, Texas City, Tex. Own Forces. Approx. $3,500,000. Styrene Monomer PLANT addn., TEXAS CITY, TEX. CD 4/28/47.

▲ **Leslie F. Crockett Constr. Co.**, 112 Academy Dr., Austin, Tex., CA. $1,039,200. Tex 10-3, 17 bldgs. for total 150 DWELLINGS units, WACO, TEX. Waco Housing Auth., Waco, Tex. Bids Feb. 29, awarded Mar. 28. CD 3/4, under LB.

▲ **T. C. Bateson Constr. Co.**, 618 Irwin-Keasler Bldg., Dallas, Tex., CA. $1,247,697, Tex. 22-4, 182 low-cost DWELLING units in 46 separate bldgs., WICHITA FALLS, TEX. Wichita Falls Housing Auth., Wichita Falls, Tex. Bids Mar. 25, awarded Mar. 28. CD 4/1 under LB.

FAR WEST

BIDS ASKED—BUILDINGS

▲ **Calif., Los Angeles**—LIBRARY—B.A. 4/23—Bd. of Law Library Trustees, Hall of Records, rein-con. library, $1,200,000. Austin, Field & Fry, 2311 W. 3 St., archts.

▲ **Calif., San Francisco** — HOUSING — B.A. 4/29 — Housing Auth. of City of San Francisco, 440 Turk St., 317 unit low rent housing, near Hunters Point, Cal. 1-17. $2,600,000. Plans deposit $100. Angus MacSweeney, 612 Howard St., archt. CD 5/4/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **J. A. Terteling & Sons**, 4011 Fairview Ave., Boise, Idaho, CA $1,280,797, relocation 19.6 mi. UP and NP railroad tracks, 1.9 mi. Hy. and constr. hy. bridge over Walla Walla River and railroad bridge over Two Rivers, Inv. 52-67, WASHINGTON, U. S. Eng., City and County Airport, Walla Walla, Wash. Bids Mar. 4, awarded Mar. 14. CD 3/10, under LB.

▲ **Pacific Bridge Co.**, 333 Kearny St., San Francisco, Calif., LB, $7,426,289, est. $7,872,760 construction for Box Canyon Hydro-Dam, Ione, WASHINGTON. Pend Oreille Co. Public Utility Distr., Newport, Wash. Bids Mar. 27. CD 2/20.

▲† **Valley Constr. Co.**, 7708 Rainier Ave., Seattle, Wash. CA, $1,067,124, sanitary and storm sewerage systems, streets, sidewalks, water system for permanent Troop Facilities area, Inv. 52-166, FORT LEWIS, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash. Bids Mar. 20. CD 3/26, under LB.

▲ **Kuckenberg Constr. Co.**, 11104 N. E. Holman St., Portland, Ore., CA $4,975,000, remove, dispose 40,000 lin. ft. 42 and 35 in. steel water pipe, mfg., install 25 mi. steel 56- to 66-in. pipe, PORTLAND, ORE., City, City Hall, Portland, Ore. Bids Mar. 14, awarded Mar. 24. CD 3/25, under LB.

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,

Piombo Constr. Co., 1571 Turk St., San Francisco, Calif., LB, $1,673,276, road construction 2.6 mi. south of south city limits of San Mateo, San Mateo Co.;

Rice Bros., Inc., 8 and Yuba Sts., Marysville, Calif., LB, $129,956, surf., grading, etc. 17.6 mi. between Kern County Line and Dunmovin, Inyo Co.;

Frederickson & Watson, 873 81 Ave., Oakland, Calif., LB, $82,767, surf. 2 mi. highway between Ferguson Rd. and 5 mi. east of Gilroy, Santa Clara Co.;

L. C. Smith, First & Railroad Ave., San Mateo, Calif., LB, $245,718, resurfacing 5.1 mi. Bayshore Freeway between Colma Creek and Broadway, San Mateo Co. Bids Mar. 26. CD 3/6.

▲ CALIFORNIA—State Div. Hys., 102 S. Spring St., Los Angeles,
Geo. W. Peterson & Jack W. Baker, 6170½ Santa Monica Blvd., Los Angeles, Calif., CA, $1,222,895, railroad underpass, hy. etc. on Santa Ana Freeway, between Los Angeles Street and Lyon St., Los Angeles Co. Bids Mar. 13, awarded Mar. 25. CD 3/19, under LB.

† **Campbell Constr. & Equip. Co.**, 465 10 St., San Francisco, Calif. LB, $918,924, 13 magazines, etc. at Naval Station, NOY 28945, Spec. 30349, PORT CHICAGO, CALIF. Twelfth Naval Dist., San Bruno, Calif. Bids Mar. 26. CD 2/27.

▲ † **M. H. Golden Constr. Co.**, 3485 Noel St., San Diego, Calif., LB, $1,394,486, 2 story, rein.-con. electronics STOREHOUSE, at Naval Air Station, Spec. 32619, SAN DIEGO, CALIF. Eleventh Naval Dist., San Diego, Calif. Bids Mar. 26. CD 3/6, under Public Buildings.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Howard S. Wright & Co.**, 407 Yale Ave. N., Seattle, Wash., CA, Approx. $2,000,000, expansion pulp and paper PLANT, EVERETT, WASH. Everett Pulp & Paper Co., Everett, Wash. CD 10/10/50.

▲ † **M. H. Golden Constr. Co.**, 3845 Noel St., San Diego, Calif., LB, $2,617,653, 8 WAREHOUSE BLDGS., at Oceanside, Spec. 32624, CAMP PENDLETON, CALIF. Eleventh Naval Dist., San Diego, Calif. Bids Mar. 26. CD 3/6.

▲ **Hal B. Hayes & Assocs.**, 13006 Saticoy St., North Hollywood, Calif., LB, $1,212,000, construct, manage and finance HOUSING, 133 unit, Serial No. 136-60007, Army 3, SACRAMENTO, CALIF. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Bids Mar. 25. CD 3/6.

▲ **Nomellini Constr. Co.**, P. O. Box 1177, Stockton, Calif., LB, $1,384,000, general contract, ADMINISTRATION, RECEIVING and TREATMENT BLDG., AUDITORIUM, etc. at Mendocino State Hospital, TALMAGE, CALIF. State Div. Architecture, P. Bldg. Wks., Sacramento, Calif. Bids Mar. 25. CD 2/20.

ALASKA

SOON LETS CONTRACT—BUILDINGS

† **Alaska, Fairbanks**—SCHOOL—B.A. 5/7—Alaska P. Wks., Dpt. Interior, Juneau, rein.-con., steel, masonry school, Proj. Aaa 50-A-49. $550,000. Plans deposit $25. Alaska Architectural & Engineering Co., Fairbanks, archt. CD 1/17.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Ont., Ottawa** — B.A. 4/29 — Chairman, Bd. Control, c/o City, Mias C. Whitton, mayor, constr. Section "C" of West Nepeau Collector Sewer 7,388 ft. 5 ft. x 5 ft. sewer in tunnel; 1,798 ft. 4 ft. 6 in. x 4 ft. 6 in. sewer in tunnel; 1,600 ft. 6 in. circular sewer in open cut, 23 manholes, $1,800,000. J. H. Irvine, c/o owner, engr. CD 8/24/49.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Pool Constr. Co. Ltd.**, 10503 109 St., Edmonton, Alta., CA, $1,600,000, 2 structural steel hangars, Job 1763;

Dominion Constr. Ltd., 1044 Arlington Ave., Winnipeg, Man., CA, $200,000, one reservoir, one combination reservoir and pumping house, one intake pumphouse, water pipe line and electrical services, Job 1769, R.C.A.F. Station, COLD LAKE, ALTA. Defence Constr. Ltd., 400 Kensington Bldg., Winnipeg, Man. Bids Jan. 31. CD 1/16.

Claydon Co. Ltd., 290 Garry St., Winnipeg, Man., CA, $556,237, central steam heating plant at R.C.A.F. Station, WINNIPEG, MAN. Defence Constr. Ltd., 400 Kensington Bldg., Winnipeg, Man. Bids Jan. 4. CD 12/10.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Frid Constr. Co. Ltd.**, 128 King St. E., Hamilton, Ont., CA, $1,884,000, 4 story, bsmnt., 45 x 324 ft. rear wings 90 x 45 ft., steel, concrete HOSPITAL, GALT, ONT. South Waterloo Hospital Corp., R. H. Malcolm, secy., Lincoln St., Galt, Ont. Bids Mar. 12, awarded Mar. 27. CD 2/27.

▲ **Riverside Terrace Ltd.**, Latchford Rd., Ottawa, Ont., Owner Builds. $1,200,000, 24 buildings, incl. 6 apartments each, OTTAWA, ONT. CD 3/21;51.

▲ **Cavendish Gardens, Inc.**, 4490 Prince of Wales Ave., Lachine, Que. Owner Builds, $2,500,000, 250 HOUSING units, 54 Ave. near Metropolitan Blvd., LACHINE, QUE.

AMERICANS ABROAD

BIDS ASKED—HEAVY CONSTRUCTION

West Africa, Republic of Liberia, Monrovia—Bids Asked—Dpt. P. Wks. & Utilities, Republic of Liberia, infiltration supply sys., pumping station, 600,000 gal. reservoir, 18,000 ft. 16 in. and 70,000 ft. 4- to 12-in. water mains, 50,000 ft. 6- to 24-in. sewers, appurtenances. Plans deposit $500. Hazen & Sawyer, 110 E. 42 St., New York 17, N. Y., engrs.

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Bids Asked—Low Bidders—Contracts Awarded—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

† **Maine**—PIPE LINE—B.A. 4/14—Fish & Wildlife Service, Dpt. Interior, 59 Temple Pl., Boston 11, Mass., installing pipe line at U. S. Fish Cultural Station, Craig Brook, Bid. No. FWS-1813. CD 3/20, under LB.

BIDS ASKED—BUILDINGS

Me., Westbrook—FACTORY—B.A. 4/15—Sebago-Moc Co., Inc., 98 Bridge St., Factory, $200,000, Alonzo J. Harriman, Inc., 292 Court St., Auburn, archt. CD 3/26.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston.

Daniel O'Connell's Sons, Inc., 480 Hampden St., Holyoke, Mass. LB **$1,776,699,** est. $1,850,000, bridge superstructure, Chicopee and West Springfield. Bids Mar. 25. CD 3/17.

▲**MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston.

J. F. White Constr. Co., 201 Alewife Brook Parkway, Cambridge, Mass. LB **$2,208,193,** est. $2,100,000, hy. and bridges, Rte. 20, West Stockbridge and Stockbridge. Bids Mar. 18. CD 3/4.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston.

Bethlehem Steel Co., 75 Federal St., Boston, Mass. LB **$2,408,149,** est. $1,500,000. Contr. C-28, steel superstructure for elevated hy., portion J. F. Fitzgerald Expressway, Boston. Bids Mar. 25. CD 2/20.

† **A. J. Halloran,** 1 Washington St., Providence, R. I. CA **$887,000,** general storehouse, Naval Air Station, Spec. 31259, QUONSET POINT, R. I. Pub. Wks. Office, First Naval Dist., 495 Summer St., Boston, Mass. Bids Mar. 18, awarded Mar. 20. CD 3/25 under LB.

CONNECTICUT—State Hy. Comn., State Office Bldg., Hartford

D. Arrigoni, 605 Main St., Middletown, Conn., LB **$103,346,** rolled bank grav. relocation River Rd., Middletown. Bids Mar. 24. CD 3/11

Zaist Bros. Contractors, Hartford Turnpike, Chesterfield, Conn., LB, **$45,245,** dam and appurtenance work, Pohegan Reservoir, GROTON, CONN. Borough of Groton Dpt. Utilities, Groton, Conn. Bids Mar. 20

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Gil Wyner Co., Inc.,** 12 Newland St., Malden, Mass. CA **$2,511,484.** HOUSING, Proj. 22-1, Bryant St. near Everett Line, MALDEN, MASS. Malden Housing Auth., Aldermanic Chambers, City Hall, Malden, Mass. CD 1/22, under LB.

▲† **B. Perini & Sons, Inc.,** 73 Montwait Ave., Framingham, Mass., CA **$2,607,318,** four WAREHOUSES and property OFFICE bldg., Naval Advance Base Supply Depot, Spec. 32576, DAVISVILLE, R. I. Pub. Wks. Office, First Naval Dist., 495 Summer St., Boston, Mass. Bids Mar. 11, awarded Mar. 20. CD 3/19, under LB.

▲ **Moloney & Rubien Co.,** 66 Wickendon St., Providence, R. I., LB **$1,236,232,** HIGH SCHOOL, Hazard Property, SOUTH KINGSTON, R. I. Town, School Bldg. Comm., South Kingston, R. I. Bids Mar. 20. CD 3/6.

Frouge Constr. Co., Inc., 74 Goodsell St., Bridgeport, Conn., CA **$793,000.** CLASSROOM and AUDITORIUM Bldg., Danbury Teacher College, B/A R-63, DANBURY, CONN., State P. Wks. Comrs., State Office Bldg., Hartford, Conn. Bids Mar. 5, awarded Mar. 20. CD 1/31, under LB

▲ **Chumblo Bros.,** 393 Post Rd., Greenwich, Conn. LB **$1,198,775,** FHA 19-1 HOUSING, Davis Ave., GREENWICH, CONN. Town Housing Auth., Greenwich, Conn. Bids Mar. 10. CD 2/13.

A. F. Peaslee, Inc., 15 Lewis St., Hartford, Conn., LB, **$317,677,** Nathan Hale High School and Frederick L. Ray SCHOOL, East Haddam, MOODUS, CONN. Town School Bldg. Comm., East Haddam, Conn. Bids Mar. 14. CD 3/5

▲ **Dan Deering Co.,** 209 Main St., Norwalk, Conn., CA **$2,138,410,** Conn. 2-2 federal low-rent HOUSING, Springwood Area, NORWALK, CONN. City Housing Auth., Norwalk, Conn. Bids Mar. 12, awarded Mar. 21. CD 3/18, under LB

MIDDLE ATLANTIC

BIDS ASKED—BUILDINGS

N. Y., Plattsburgh—HOUSING—B.A. 4/18—Plattsburgh Housing Auth., 27 Broad St., Housing Proj. NY 18-1, 31 two-story buildings for 150 families, Sharron Ave. Site. Plans deposit $25. Peisner & Urbahn, 654 Madison Ave., New York, archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

NEW JERSEY—State Hy. Dpt., Trenton,

Union Paving Co., 1227 N. Broad St., Phila., Pa., CA, **$448,496,** wid'n., resurf. 6.733 mi., Route 43 (White Horse Pike) from Union Avenue, Elwood to Route 39, Mullica Twp. and Hammonton, Atlantic Co. Bids Mar. 25. CD 3/6.

NEW JERSEY—State Hy. Dpt., Trenton,

Peter W. Kero, Inc., 615 North Ave., Lyndhurst, N. J., CA, **$830,893,** paving, bridges, retaining walls, 0.221 mi. Route 25 A. (Section 1H) from High to Broad Sts., Newark, Essex Co. Bids Mar. 13. CD 3/18, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Ole Hansen & Sons, Inc.,** 0 Turnpike and Franklin Ave., Pleasantville, N. J., CA, Approx. **$2,500,000,** 1 story, 150,000 sq. ft., China factory, Tilton Rd. near White Horse Pike, EGG HARBOR, N. J. Lenox Inc., Meade St., Trenton, N. J. Awarded Mar. 25. CD 3/24.

Henry M. Taggart, Inc., 1924 Chestnut St., Phila. 3, Pa., LB **$474,700,** general contract revamp present PATIENTS' BLDG. at Embreeville State Hospital, EMBREEVILLE, PA. General State Auth., 18 and Herr Sts., Harrisburg, Pa. Bids Mar. 26. CD 3/5.

▲ **Kaiser Engineers, Inc.,** 1924 Broadway, Oakland, Calif. aluminum extrusion PLANT on 13 acre site;

Loewy Constr. Co., 570 Lexington Ave., New York, N. Y. equipment, incl. 2 presses, HALETHORPE, MD. Total est. cost **$9,000,000.** Kaiser Aluminum & Chemical Corp., 1924 Broadway, Oakland, Calif.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

† **Fla., Orlando**—PARACHUTE—B.A. About 4/16—U. S. Eng., P. O. Box 4970, Jacksonville, Zone 1, parachute bldg. and dinghy shop, hydrogen-oxygen storage bldg., and radar trainer bldg., Pinecastle Air Force Base, Serial No. ENG 08-123-52-132. (Correction—status) CD 2/13, under CA.

† **S. C., Beaufort**—B.A. 4/22—Dpt., Navy Officer in Charge of Construction, Box 365, Naval Base, Charleston, water main extens. at Naval Hospital, NOY 71523. Plans deposit $10.

† **W. Va., Charleston**—SHOP—B.A. On Or About 5/15—U. S. Eng., 237 Fourth Ave., Huntington, Zone 18, construction motor service shop at Kanawha County Airport, Serial No. ENG 46-022-52-117.

BIDS ASKED—BUILDINGS

† **Va., Yorktown**—BUILDINGS REPAIRS—B.A. 4/15—Pub. Wks. Office, Headquarters, Fifth Naval Dist. U. S. Naval Base, Norfolk, Zone 11, repairing bldgs. at U. S. Naval Mine Depot (Cook Terrace), NOY 71860, Spec. 33252. Plans deposit $10.

N. C., Greensboro—HOME ECONOMICS—B.A. 4/23—A. & T. College, c/o McMinn & Norfleet, archts., Greensboro, home economics bldg. Plans deposit $25.

† **N. C., Fort Bragg**—SHOP FACILITIES—B. A. About 5/5—U. S. Eng., 308 Customhouse, Wilmington, shop facilities, incl. one battalion shop; 4 identical company shops, oil storage bldg., masonry, concrete constr.; concrete paving of tank trails; outside utilities; steam distr. sys. for shops, approx. 3,000 ft. chain link fencing, Serial No. Eng 31-075-52-23. CD 12/26.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

SOUTH CAROLINA—State Hy. Dpt., Columbia,

McMeekin Constr. Co., Cheraw, S. C., LB **$487,194,** 2 rein.-con. overflow bridges at Great Pee Dee River, F-241 (4), Georgetown and Horry Counties;

Frank W. LaMotte, Columbia, S. C., LB **$126,016,** 2 rein.-con., structural steel bridges over Enoree River and Durbin Creek near Woodruff, S-139 (2), Laurens and Spartanburg Counties; LB **$215,004,** rein.-con. deck for bridge over Congaree River and roadway lighting sys., U. S. Rte. 21, U-2570 (1) and UG 2570 (3), Lexington and Richland Counties;

Hubbard Constr. Co. of South Carolina, Inc., Marion, S. C., LB **$198,659,** grading, earth base course 1.416 mi. U. S. Rt. 701, being bridge approaches at Great Pee Dee River near Yauhannah, F-241 (4), Georgetown and Horry Counties. Bids Mar. 18. CD 3/12.

SOUTH CAROLINA—State Hy. Dpt. Columbia,

Sloan Constr. Co. Inc., Peoples Natl. Bank Bldg., Greenville, S. C., LB **$251,197,** 30.05 mi. hot laid b. conc. surf. course resurf. U. S. Rtes. 25, 29, 76, State Rtes, 20, 13 and 76, 4.1053, 23, 1067, Anderson and Greenville Counties; LB **$84,788,** hot laid b. conc. surf. course resurf. 23.62 mi. U. S. Rt. 501, 26.1026 and 34.1011, Horry and Marion Counties; LB **$62,594,** hot laid b. conc. surf. course resurf. 18.8 mi. U. S. Rte. 29 in Spartanburg and State Rte. 9. 42.1061, Spartanburg Co.;

Banks Constr. Co. Inc., Stark Industrial Area, Charleston, S. C., LB **$64,450,** hot laid b. conc. surf. course resurf. 16.5 mi. U. S. Rt. 17, 10.1050, Charleston Co.;

Claussen-Lawrence Constr. Co., 1394 Gwinnett St., Augusta, Ga., LB **$69,591,** hot laid b. conc. surf. course resurf. 22.2 mi. U. S. Rte. 378, 14.1014, 21.1021 and 43.1016, Clarendon, Florence and Sumter Counties;

Wham Constr. Co., Anderson, S. C., LB **$95,235,** bit. surf. 6.781 mi. Roads 269, 98, 212, 77, 255 and 232 F. A. Proj. S-654 (1), Pt 1, 2, and 3 and S-645 (1), 4.361, Anderson Co.;

Hubbard Constr. Co. of South Carolina, Inc., Marion, S. C., LB **$127,565,** bit. surf. 8.305 mi. Roads 72, 77, 78, 74, 75 and 76 near Brickyard Creek, Village Creek and Rt. 285, S-616 (1) and 618 (1), Beaufort Co.; LB **$180,143,** bit. surf. 14.3 mi. Roads 54, 147, 166, 37, 33, 71, 34 and 20, Rte. 96, F. A. Proj. S-621 (1), Dillon Co.;

Robert Lee, Inc., Manning, S. C., LB **$138,828,** bit. surf. 10.246 mi. Road 40 from U. S. Rte. 301 north of Manning northeast to Rte. 527, S-620 (1), Clarendon Co.; LB **$89,445,** bit. surf. 6.3 mi. Road 14 and 35, F.A. Proj. C-660 (1), 22.276, Georgetown Co.;

Kraft & Newell, Florence, S. C., LB **$159,228,** bit. surf. 12.84 mi. Roads 29, 90, 167, 112, 145, 166 and 165, S-600 (1), 21.328, Florence Co.;

Ballenger Paving Co., Paris, S. C., LB **$140,144,** bit. surf. 8.561 mi. Roads 30, 43, 72 and 55, F.A. Proj. S-45 (3) and S-626 (1), Horry Co.;

Fox Constr. Co. Inc., Lexington, S. C., LB **$112,801,** (Alt. 4), bit. surf. 12.425 mi. 32.315, etc. Lexington Co.;

Carolina Constr. Co. Inc., 1000 Adeline St., Columbia, S. C., LB **$64,073,** bit. surf. 6.844 mi. Road 45 F.A. Proj. S-612 (1), 36,267, Newberry Co.;

Reeves Bros. Constr. Co. Inc., Easley, S. C., LB **$90,022,** bit. surf. 2.044 mi. Road 41, Rte. 130; 1.592 mi. Rte. 130; 1.656 mi. Road 61, F.A. Proj. S-636 (1), 37.314, Oconee Co.;

A. M. Tuck, Greenwood, S. C., LB **$148,991,** bit. surf. 6.781 mi. Roads 269, 98, 212, 77, 255 and 232 near Piedmont and Williamston, S-586 (1), Spartanburg Co. Bids Mar. 18. CD 3/12.

▲† **Vest & Bartell,** 4438 Appleton St., Cincinnati, O. CA **$1,112,258.** Pumping plant in connection with flood wall at State Fair Grounds, CIVENG 15-029-51-132. KENTUCKY, U. S. Eng., 830 W. Broadway, Louisville 3, Ky. Bids Mar. 11, awarded Mar. 19. CD 3/14, under LB.

KENTUCKY—State Hy. Dpt., Frankfort,

Fuller-Deboo Co., Covington, Ky. CA **$574,419.** bit. surf. Class I 2.74 mi. Frankfort-Lexington Rd.., FI 326 (21), SP 37-65, Franklin Co. CD 3/21, under LB.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **O., Youngstown**—RUNWAY, etc.—B.A. On Or About 5/2—U. S. Eng., 237 Fourth Ave., Huntington 18, W. Va., runway and taxiway numbering and marking at Youngstown Municipal Airport, Vienna, Trumbull Co. Serial No. ENG 46-022-52-108. CD 6/5.

† **O., Columbus**—ROADS and DRAINS—B.A. On Or About 5/7—U. S. Eng., 237 Fourth Ave., Huntington 18, W. Va., construct roads and drains at Lockbourne Air Force Base, Serial No. ENG 46-022-52-115.

BIDS ASKED—BUILDINGS

Mich., Lansing—SCHOOL—B.A. 4/22—State, A. N. Langius, dir. State Bldg. Dpt., 200x300 ft., brick steel school of vocational education for State School for Blind, $500,000. Plans deposit $15, Lee & Kenneth C. Black, 706 Capitol Savings & Loan Bldg., archts. CD 1/22.

O., Toledo—FIRE STATION—B.A. 4/29—City, City Hall, fire headquarters bldg. with fire station, Huron St. $400,000. Bellman, Gillett & Richards, 518 Jefferson St., archts. CD 3/26.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Great Lakes Dredge & Dock Co.,** Wimson Bldg., Cleveland, O., CA **$362,560,** approx. 440,000 cu. yd. maintenance dredging in Cuyahoga River, CIVENG 21, OHIO. U. S. Eng., Engineer Park, Buffalo 7, N. Y. Bids Feb. 26, awarded Mar. 24. CD 2/13.

▲ **Ohio Pipeline Constr. Co.,** Granville, O., CA **$1,105,000,** 23 mi. 20 in. natural gas pipe line from near Mt. Vernon, OHIO to storage fields in Richland Co.;

H. L. Gentry Co., Jackson, Mich., CA. Approx. **$465,000,** 8 mi. 20 in. natural gas pipe line from Lime City to Maumee, OHIO. Ohio Fuel Gas Co., 109 N. Front St., Columbus, O. Awarded Mar. 26 and 24 respectively. CD 10/17/46.

(Continued on page 134)

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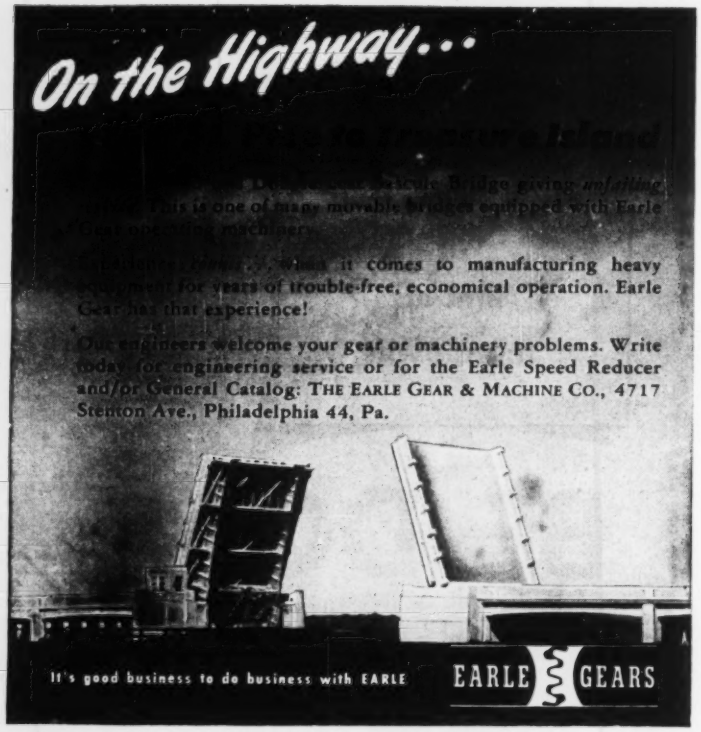
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(Continued from page 132)

† **S. W Hardwick Co.**, First State Bldg., Beardstown, Ill., LB $217,976, constr. levees Columbia Drainage and Levee Dist., Proj. Item IV-C, Monroe Co., on north bank of Fountain Creek Mississippi River opposite approx. mile 156 above mouth of Ohio River, Inv. No. CIVENG 23-065-52-74, ILLINOIS. U. S. Eng., 834 U. S. Court House & Custom House, 1134 Market St., St. Louis, 1, Mo. Bids Mar. 25. CD 3/6

BUILDINGS

LOW BIDS AND CONTRACTS

George Hare & Sons, 6013 Montgomery Rd., Cincinnati, O., Owner Builds. $300,000, six 1,200 sq. ft. brick APARTMENTS, CINCINNATI, O. Ray Hare, 6013 Montgomery Rd., Cincinnati, O., archt. Awarded Mar. 26.

▲ **General Motors Corp.**, Fabricast Div., General Motors Bldg., Detroit, Mich. Owner Builds, $2,000,000, large PLANT addn., BEDFORD, IND. CD 4/9/51

Reniger Constr. Co., 127 N. Cedar St., Lansing, Mich. CA $440,000, municipal POWER PLANT, Moores Park Station, LANSING, MICH. City, Otto E. Eckert, gen. mgr. Bd. Light, Lansing, Mich. Bids Mar. 10. CD 3/3.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

N. D., Richardton—B.A. 4/23—City, WW imprvs., incl. development of spring water supply, pump house and pumps, turbine, water lines in connection with above. $36,000. L. W. Veigel, Dickinson, engr.

† **Colorado**—B.A. 4/29—U. S. Eng., 1709 Jackson St., Omaha, Neb., furnishing, installing high level alarm system for Cherry Creek Dam, Inv. 52-97. CD 6/1/44.

† **Arkansas**—B.A. 5/1—U. S. Eng., P. O. Box 97, Memphis 1, Tenn., placement approx. 660,000 cu. yd. earth work and incidental work in connection with constr. loop levee in white River Levee Dist., R-608, Knowlton, Levee Sta. 52/49-53/42, along right bank of Mississippi River in Desha Co., Serial No. CIVENG 40-041-52-86. CD 3/9/45.

† **Texas**—B.A. 5/8—U. S. Eng., 606 Santa Fe Bldg., Galveston, application of seal coat, Barker Dam, Buffalo Bayou, Inv. No. CIVENG 77. CD 6/9/44.

BIDS ASKED—BUILDINGS

† **Colo., Boulder**—LABORATORY, etc.—B.A. 4/28—U. S. Atomic Energy Comn., P. O. Box 5400, Albuquerque, N. M. 1 story, 13,500 sq. ft., rein.-con. frame general laboratory and 2 story, bsmnt., 7,800 sq. ft. rein.-con. frame water treatment plant at new Rocky Flats Project $225,000-$300,000 and $250,000-$300,000 respectively. The Austin Co., 1300 Glenarm St., Denver, archt. and engr.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

IOWA—State Hy. Comn., Ames,
Graves Bros., Melvin, Ia., LB, $175,454, Group 1; LB $156,469, Group 2; LB $76,340, Group 3, Proj. F-235 (2), Fremont Co.;
F. A. Moser, Farmersburg, Ia., LB, $82,099 F-200 (5), Black Hawk Co.;
A. Olson Constr. Co., Waterloo, Ia., LB, $99,406 SN-2083, Jackson Co. Bids Mar. 25. CD 3/13.

IOWA—State Hy. Comn., Ames,
Wilbur Nielson Co., Blencoe, Ia., LB, $62,445 grading 8.548 mi. S-1510 (1), Harrison Co.; LB $125,897, grading 18.16 mi. FM-247, Sac Co.;
Ronald Kenyon Co., 325 59 St., Des Moines, Ia., LB, $76,762, paving 1.06 mi. S-140 (3), Hancock Co.;
Roverud Constr. Co., Spring Grove, Minn., LB, $154,170 paving 4.53 mi. F-841 (3), Dubuque Co.;
Cameron, Joyce & Co., Keokuk, Ia., LB, $235,271, paving 7.897 mi. F-978 (1), Div. 1, Winnebago Co.;
H. F. Schroeder & Sons, Arcadia, Ia., LB, $64,748, grading 6.231 mi. FN-839 (5), Calhoun and Webster Counties.

Concrete Materials & Constr. Co., 405 Granby Bldg. Cedar Rapids, Ia., LB, $98,769, surf. 10.85 mi. HR-17, Muscatine Co. Bids Mar. 25. CD 3/13.

▲† **U. S. Eng.**, 601 Davidson Bldg., Kansas City 8, Mo. rejected bids Feb. 14 concrete runways, taxiways and aprons, LB $1,435,493. Alert hangar bldg., ENG 23-028-52-35, LB $299,950, Grandview Air Force Base, GRANDVIEW, MO. CD 2/20, under LB.

† **Wade Lahar**, P. O. Box 605, Mountain Home, Ark., LB, $817,900, clearing Blakely Mountain Reservoir, Garland and Montgomery Counties, Inv. 52-126, ARKANSAS. U. S. Eng., P. O. Box 60, Vicksburg, Miss. Bids Mar. 20. CD 3/26.

▲† **C. F. Lytle Co.**, 250 Insurance Exchange Bldg., Sioux City, Ia., CA, $1,868,862, construct Jamestown Dam, Missouri River Basin Proj., Spec. DC-3656, NORTH DAKOTA. Bureau Reclamation, Dpt. Interior, Bismarck, N. D. Bids Mar. 18, awarded Mar. 25. CD 3/27, under LB.

▲ **Union Pacific R. R.**, W. C. Perkins, ch. engr., 1416 Dodge St., Omaha, Neb., install 257 mi. cab-signal line, from Omaha to Valley, NEBRASKA, Green River, Wyoming to Ogden, UTAH and Laramie and Cheyenne, WYOMING.

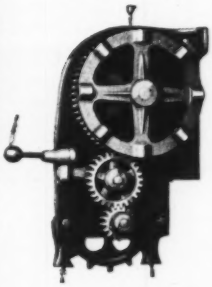
Austin Bridge Co., 1201 N. Post Oak St., Dallas, Tex., LB $513,972, est. $550,000. Colorado River vehicle and pedestrian bridge to connect Guadalupe and Lavaca Sts. with S. 1st St., AUSTIN, TEX. City, City Hall, Austin, Tex., Bids Mar. 25. CD 3/13.

▲† **H. B. Zachry Co.**, Box 2570, San Antonio, Tex., LB $1,420,030, addnl. airfield paving, incl. runway, taxiway, aprons, gunnery and ordnance areas, at Naval

(Continued on page 136)

Rolling Steel DOORS

Mahon Release Device and Governor on the Automatic Closing Mechanism of a Mahon Rolling Steel Fire Door. Fusible links release the mechanism in case of fire and the door closes automatically.



Mahon Release Device for Chain-Gear Operator on Mahon Mechanically Operated Rolling Steel Fire Doors. Fusing of the Fusible Link, which releases the Automatic Closing Mechanism, simultaneously disengages the Chain-Gear Operator.

Manually, Mechanically, or Power Operated

In the openings between an enclosed loading dock and a large food warehouse illustrated below, twenty-four Mahon automatic closing, Underwriters' Labeled Rolling Steel Fire Doors were installed to protect the contents of the building. These doors are manually operated in normal service, but are equipped with fusible links and an automatic closing device which quickly closes the door in case of fire. Mahon Underwriters' Labeled Rolling Steel Fire Doors, like all other Mahon Rolling Steel Doors, occupy no usable space inside or outside the opening . . . they are built to give a lifetime of trouble-free service . . . for instance, the galvanized steel for the interlocking curtain slats of Mahon Rolling Steel Doors is chemically cleaned, phosphated, and chromated to produce paint bond, and the protective enamel coating is baked on at 350° F. prior to roll-forming. This is just one of the extra value features of Mahon Rolling Steel Doors—you will find others if you check specifications carefully. See Sweet's Files for complete information, or write for Catalog No. G-52.

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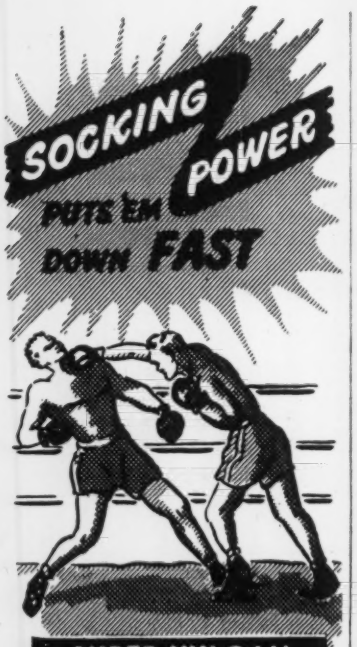
Manufacturers of Rolling Steel Doors, Grilles, and Automatic Closing Underwriters' Labeled Rolling Steel Doors and Fire Shutters, Insulated Metal Walls, Steel Deck for Roofs, Partitions, and Permanent Concrete Floor Forms.

Twenty-Four Mahon Automatic Underwriters' Labeled Doors installed in a new Warehouse for Food Warehouses, Inc., Detroit, Mich. Two Mahon Power Operated Rolling Steel Doors 17'-0" x 22'-0" are installed in railroad openings in this same building. Louis G. Redstone, Architect. Campbell Construction Company, General Contractors.

MAHON



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Sizes: 18C-30C-50C-80C meet all needs.

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(Continued from page 134)

Auxiliary Air Station, NOY 72197, KINGSVILLE, TEX. Dpt. Navy, Naval Air Station, Corpus Christi, Tex. Bids Mar. 27. CD 3/10.

▲† **Winston Bros. Co.,** 431 N. Irwindale Ave., Azusa, Calif., CA, $2,268,292, Schedules 1 and 4, earthwork, structures tunnels and canal lining for St. Vrain Supply Canal, Station 10 plus 90 to 520 plus 75, Colorado Big Thompson Proj. Spec. DC 3657, COLORADO. Bureau Reclamation, Dpt. Interior, Loveland, Colo. Bids Mar. 11, awarded Mar. 24. CD 3/14, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **North American Steel Co.,** C. A. Depue, pres. Clinton, Ia., Owner Builds, $66,000,000. Pig iron and steel MILL, CAMANCHE, IA. CD 3/21, under CA.

▲ **I. E. Millstone Constr. Co.,** 4343 Clayton Ave., St. Louis 10, Mo. LB $12,870,000. general contract 1,736 DWELLING units, incl. twenty 11 story, brick, rein.-con. apartment bldgs., demolition of certain bldgs., Proj. Mo. 1-4;

Kremer-Hicks Co., 3974 Delmar Blvd., St. Louis, Mo. LB $2,087,000, heating contract;

E. O. Dorsch Electrical Co., 2011 Olive St., St. Louis, Mo. LB $910,500, electrical work.

Eugene Duklauer, Inc., 215 E. 38 St., New York, N. Y. LB $1,972,000. plumbing contract, ST. LOUIS, MO. St. Louis Housing Auth., David Murphy, acting exec. dir., 901 Washington Ave., St. Louis 1, Mo. Bids Mar. 27. CD 3/4.

C. S. Lambie Constr. Co., Amarillo, Tex., CA, Approx. $150,000. WAREHOUSE, AMARILLO, TEX. Southwestern Public Service Co., Amarillo, Tex. CD 3/26.

▲ **Linbeck Constr. Corp.,** 3616 W. Alabama St., Houston, Tex., CA. $2,725,000, research LABORATORY, HOUSTON, TEX. Humble Oil & Refining Co., Humble Bldg., Houston, Tex. Awarded Mar. 22. CD 3/24.

▲ **Celanese Corp. of America,** Pampa, Tex., Own Forces. Approx. $2,800,000. CHEMICAL PLANT, near PAMPA, TEX. CD 5/17.

† **Craftsmen Constr. Co.,** P. O. Box 1651, Santa Fe, N. M., LB $299,989, Health Physics Bldg. 23, Laundry Bldg. 42, Inv. No. 292-52-33, BOULDER, COLO. U. S. Atomic Energy Comn., P. O. Box 5400, Albuquerque, N. M. Bids Mar. 20. CD 2-5.

FAR WEST

BIDS ASKED—BUILDINGS

Calif., San Francisco—CLASSROOM—B.A. 4/23—Dpt. P. Wks., City Hall, classroom and library bldg. for City College of San Francisco. CD 11/17/48

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Mid-Pac (Hawaiian Dredging Co., E. E. Black, Ltd., and James W. Glover** all of Honolulu and **J. H. Pomeroy, Inc.,** 333 Montgomery St., and **Bechtel Corp.,** 220 Bush St. both of San Francisco, Calif.) CA $8,000,000, warm up and plane parking area, telephone exchange, operations bldg., control tower, automotive repair facilities, fire house, parachute loft, drying tower, warehouse, quarters, etc., KWAJALEIN, MARSHALL ISLANDS. P. Wks. Officer, Kwajalein Naval Station, Kwajalein, Marshall Islands. CD 9/24

▲† **Donovan-Foley-Winston-Lytle-James,** 1725 Carroll St., St. Paul, Minn., CA $8,601,246, est. $7,343,967, hydro electric power house for Albeni Falls Dam, Priest River, CIVENG 45-108-52-29, IDAHO. U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash. Bids Mar. 6. CD 3/12, under LB

ARIZONA—State Hy. Dpt., 17 Ave. and Jackson Sts., Phoenix,
rejected bids Feb. 19, sub grade seal select material aggregate base, bit. 1½ mi. Ash Fork-Flagstaff Section U. S. 66, Conconino Co. LB $484,578. Will re-advertise.

ARIZONA—State Hy. Dpt., 17 Ave. and Jackson Sts., Phoenix,
Pioneer Constr. Co., Box 2768, Tucson, Ariz., CA $279,521, select material 4.1 mi. Florence-Tucson Hy., Pima Co. Bids Feb. 19, awarded Mar. 15

CALIFORNIA—State Div. Hys., 102 S. Spring St., Los Angeles,
Webb & White, 7220 Melrose Ave., Los Angeles, Calif. LB $764,976, road construction 1.2 mi. on Santa Ana Freeway between Los Angeles St. and Orangewood Ave., Orange Co. Bids Mar. 20. CD 2/29

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

† **Alaska**—THEATER—B.A. 4/25—U. S. Eng., (APO 942, c/o PM, Seattle, Wash.) Anchorage, 1 story, 90x210 ft., rein.-con., concrete block panels 1,000 seat capacity theater with stage, etc. at Eielson Air Force Base, Inv. No. ENG 95-507-52-19. Plans deposit $25. CD 10/4, under LB.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Ont., Hamilton—B.A. 4/17—L. D. Jackson, mayor, City Hall, c. conc. asph. Burlington St., Craighrayston Rd., Garside, Crosthwaite and Pardale Aves. Approx. $300,000. W. L. McFaul, c/o owner, engr.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Kilmer Van Nostrand, Ltd., 315 Eglinton Ave. W., Toronto, Ont., LB, $190,118, Contr. A and B, pavements Jones Ave. between Queen St. E. and Myrtle Ave.;

Rayner Constr. Ltd., 29 Commercial Rd., Leaside, Ont., LB, $76,616, Contr. D, pavements Jones Ave. between Baird and Danforth Aves.,

Godson Contg. Co. Ltd., 1870 St. Clair Ave. W. Toronto, Ont., LB, $94,368, Contr. C, pavements Jones Ave. between Boultbee and Baird Aves., TORONTO, ONT. City, A. A. Lamport, mayor, City Hall, Toronto, Ont. CD 11/15.

Brush A. B. O. E. (Canada) Ltd., 15555 Mackay St., Montreal, Que., CA $100,000, diesel generating units at R. C. A. F. Station, BAGOTVILLE, QUE. Defence Constr. Ltd., 1247 Guy St., Montreal, Que. M. P. McAndrew, c/o owner, engr.

Louis Donolo, Inc., 8320 St. Lawrence Blvd., Montreal, Que., CA, $320,000, officers Mess, Scheeme B, Class I at R. C. A. F. Station, ST. HUBERT, QUE. Defence Constr. Ltd., 1247 Guy St., Montreal, Que. Bids Feb. 26. CD 2/6.

BUILDINGS

LOW BIDS AND CONTRACTS

Pigott Constr. Co. Ltd., 1250 Bay St., Toronto, Ont., CA, $500,000, 1 story with 3 story section, 100x250 ft. concrete block, steel, rein.-con. grease PLANT CLARKSON, ONT. British American Oil Co.; Clarkson, Ont. Bids Mar. 3. CD 2/15.

Proposed Projects

WATER SUPPLY

▲ **Calif., Hemet**—Eastern Municipal Water Dist., Hemet, voted $4,300,000 bonds, constr. primary distribution mains and pump stations. Doyl F. Boen, c/o owner, engr. CD 12/27.

Tenn., Johnson City—City, addnl. water facilities. $725,000.

▲ **Tex., Lubbock**—City, water storage, $300,000; water distr. lines, main line from Lake to city limits, $600,000; WW sys., general rehabilitation and imprvs. $450,000. W. B. Holmes, city engr. CD 12/20/49.

▲ **Va., South Boston**—Town, J. R. Booth, mayor, South Boston, bond election Apr. 29, water, sewer, parking lot. $1,190,000. CD 2/28.

SEWERS, WASTE DISPOSAL

▲ **Ind., Connersville**—Bd. P. Wks., City Hall, sewage treatment plant addn. and sewer system extensions and rehabilitation, $2,000,000. John W. Moore Co., 830 Indiana Pythian Bldg., Indianapolis, Ind., consult. engr. CD 4/21/44.

▲ **La., Gretna**—Jefferson Parish Police Jury, $2,240,000 bond election April 22, sanitary sewer imprvs. in Ward 4, sewerage in Dist. 3.

Md., Nevada—City, sewers and sewage plant, $500,000. B. L. Oliver & Co., 1805 Grand St., Kansas City, Mo., consult. engrs. CD 3/10.

▲ **Pa., Pittsburgh**—City and Allegheny County Sanitary Auth., John F. Labron, City-County Bldg., sewage treatment plant. $7,000,000-$8,000,000. Metcalf & Eddy, 1300 Statler Bldg., Boston, Mass., consult. engrs. CD 11/11/43.

▲ **Tenn., Nashville**—City, City Hall, voted bonds, sewage disposal plant. $11,000,000. CD 1/15.

STREETS AND ROADS

▲ **ALABAMA**—State Hy. Dpt., Montgomery,
Jefferson Co.—Imprv. 3 Ave. west, from 14 St. to Ave. V in Central Park Section of Birmingham, $1,000,000

Morgan Co.—widn. Hy. 31 from 6 St. to Laurel and Walnut Sts., Decatur. Approx. $100,000. CD 12/18

La., Ville Platte—City, street paving, $510,000.

▲ **O., Warren**—City, Wm. C. Burbank, mayor, City Hall, and Erie R. R. Co., I. H. Schram, ch. engr., Midland Bldg., Cleveland, Zone 15, removal of Erie R.R. tracks from South St. and eliminate all grade crossings between Pine and Tod Aves. $4,588,000. CD 1/29/47.

WASHINGTON—State Hy. Dpt., Olympia,
Okanogan Co.—relocating highway between Riverside and Tonasket, $975,755. W. A. Bugge, state hy. dir.

EARTHWORK, WATERWAYS

Ind., Gary—Cady-Marsh-Ditch Comr., Sam Brownstein, Court House, Crown Point, 4 mi. open and tile work drainage ditch, South of Ridge Road, from Buchanan St. to U.S. Rd. 41. $700,000. Sam Brownstein, Court House, Crown Point, engr.

AIRPORTS

▲ **O., Akron**—ADMINISTRATION—Summit and Stark Co. Comrs. Court House, Akron, administration bldg. at Akron-Canton Airport. $1,000,000. CD 3/25/46.

(Continued on page 139)

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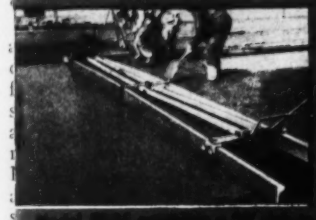

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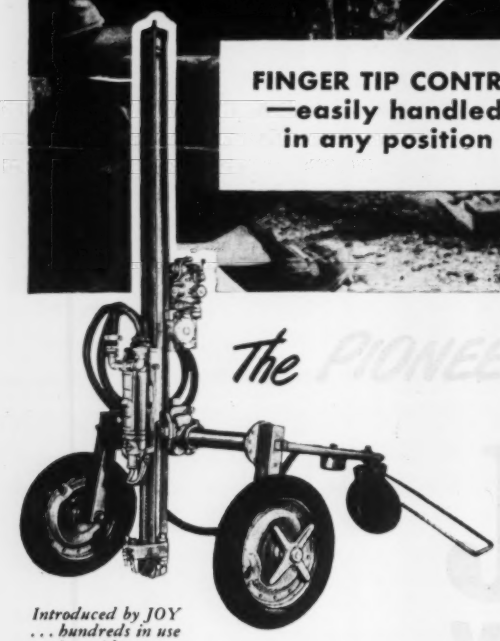

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(Continued from page 136)

O., Mansfield—RUNWAY—City, Air National Guard, Mansfield, enlarge runway from 5,600-6,800 ft. at Mansfield Airport.

▲ O., Youngstown—RUNWAYS, etc.—City, City Hall, 3 new runways and taxi sys. at Youngstown Municipal Airport. $3,500,000. Samuel Gould, city engr. CD 9/9/43.

▲ Ont., Centralia—SCHOOL, etc.—Govt. of Canada, Dpt. National Defence AIR, Cartier Sq., Ottawa, Ont. ground instruction school, $400,000; steam generating plant, $450,000, distribution sys. $500,000. Defence Construction 1951 Ltd., 441 Queen's Quay, Toronto, engr.

PUBLIC BUILDINGS

▲ Calif., Miranda—SCHOOLS—Southern Humbolt Unified School Dist., Miranda, plans by Ernest F. Winkler & Leslie C. Irwin, 251 Post St., San Francisco, elementary schools and high school shop. $1,500,000

▲ Calif., Richmond—SCHOOLS—Richmond Union High School Dist., 1108 Bissell Ave., Richmond, voted $7,000,000 bonds, high school and 2 junior high schools and voted $5,000,000 bonds, schools and alterations. CD 1/23.

▲† Colo., Boulder—LABORATORY—National Bureau of Standards, 19 and F Sts. N.W., Wash., D. C., plans by Robert W. Ditzen, 1135 Pearl St., 4 story, 191,611 sq. ft. radio propagation laboratory, with three 1 story wings off center bldg. $4,500,000. Pereira & Luckman, 7421 Beverly Blvd. and J. E. Stanton, 627 S. Carondolet St., Los Angeles, Calif., consult. engrs CD 12/23/49.

Colo., Loveland—SCHOOLS—School Dist. 2, Larimer County, Loveland, voted bonds, grade school, remodeling 3 grade schools, and junior and senior high school, $750,000. John K. Monroe, 400 Security Life Bldg., Denver, engr. and archt. CD 2/21

▲ Ga., Albany—HOUSING—Albany Housing Auth., Albany, 140 housing units $1,100,000

Ga., Alma—HOUSING—Alma Housing Auth., Alma, 62 housing units, $500,000

Ga., Blakely—HOUSING—Blakely Housing Auth., Blakely, 85 housing units, $700,000

Ga., Cairo—HOUSING—Cario Housing Auth., Cairo, 60 housing units, $500,000

Ga., Calhoun—HOUSING—Calhoun Housing Auth., Calhoun, 68 housing units, $550,000.

▲ Ga., Columbus—HOUSING—Columbus Housing Auth., 1000 Wynnton Rd., 242 housing units, $2,000,000

Ga., Dublin—HOUSING—Dublin Housing Auth., Dublin 100 housing units, $800,000.

▲ Ga., Gainesville—HOUSING—Gainesville Housing Auth., Gainesville, plans by Wm. J. J. Chase & Assocs., Candler Bldg., Atlanta, 160 housing units, $1,400,000

Ga., Hazelhurst—HOUSING—Hazelhurst Housing Auth., Hazelhurst, 65 housing units, $525,000.

Idaho, Rupert—SCHOOL—School Bd., Rupert, plans by F. Hummel, 1324 Idaho St., Boise, high school, $790,000. CD 4/9/51.

Mass., Lowell—AUDITORIUM-GYMNASIUM—State, Dpt. Educ., 200 Newbury St., Boston, plans by John M. Gray, 75 High St., Boston, auditorium-gymnasium classroom, State Teachers College, $850,000.

▲ Mass., Needham—SCHOOL—Town, Supt. Schools, 1300 Highland Ave., plans by Kilham, Hopkins, Greeley & Brodie, 9 Arlington St., Boston, high school addn. $1,500,000.

▲ Mont., Boulder—SCHOOL, etc.—Montana Common Health Dpt., Missoula, dormitories, school, etc., State Training School, $2,250,000. CD 11/21/50.

▲ Neb., Omaha—SCHOOLS—Bd. Educ., 3902 Davenport St., replacement of West Side School, 3125 U St. $600,000; North Junior High School, $1,100,000; North High School addn. $500,000; South High School addn., $800,000; Benson High School addn., $450,000.

† Nev., Reno—EXPERIMENT STATION—Bureau Mines, Dpt. Interior, Interior Bldg., 19 and C Sts., N. W. Wash. 25, D. C., experiment station, $750,000.

▲ N. J., Ancora—HOSPITAL—N. J. State Div. Purchases & Property, State House, Trenton, plans by Epple & Seaman, 901 Broad St., Newark, State Mental Hospital, $12,000,000. Ellwood D. Powers, 972 Broad St., Newark, engr.

▲ N. J., Glassboro—LIBRARY, etc.—New Jersey State Bd. Educ., 51 W. State St., Trenton, library, classroom bldg. and dormitory, State Teachers College, $1,500,000. CD 10/31/46.

▲ N. J. Trenton—FOOD SERVICE BLDG., etc.—New Jersey State Bd. Educ., 51 W. State St., food service bldg. and dormitory, Trenton State Teachers College, $1,500,000.

Pa., Phila.—SCHOOL—Bd. Educ., 21 and Winter Sts., plans by David Supowitz, 246 S. 15 St., school, Johnson and Crittenden Sts. $750,000. CD 2/8/45.

▲ Pa., Upper Darby—SCHOOLS—Upper Darby School Dist., Lansdowne Ave. and School Lane, Senior High School modernization, $500,000; elementary school, Westbrook Park sect. $650,000; Junior High School, $3,000,000; Primos and Garrettford Schools addns., $300,300; plans by Barney & Banswell, 1400 S. Penn Square, Phila., Hillcrest School addn., $350,000. CD 1/13/49.

Tex., Conroe—HOSPITAL—Montgomery Co., Court House, hospital addn. $600,000. Walter P. Moore, 4605 Montrose Bld., and Howard & Johnson, 1011 Scanlan Bldg., Houston, consult. engrs. CD 3/18.

▲ Tex., Dallas—SCHOOLS—Dallas Independent School Dist., Akard and Royal Sts., plans by Mark Lemmon, 1210½ Main St., (bd. archt. consult.), elementary school, 7.6-acres, Royal Lane North of Preston Hollow School, $600,000; Junior High School on portion 23-acre tract in West Dallas, $800,000; Junior High School, 19.95-acre tract on Buckner Blvd. near Pleasant Mound, $900,000; elementary school on portion 23-acre site in West Dallas., $700,000. CD 9/23/49.

▲ Tex., San Antonio—HOUSING—San Antonio Housing Auth., 400 Labor St., 200 low-cost housing units near St. Marys St. $1,500,000. CD 10/24/49.

▲ Ont., Ottawa—LABORATORY, etc.—Govt. of Canada, Dpt. Agriculture, Hunter Bldg., hygiene virus laboratory, $424,000; records storage bldg. addn., $1,000,000. Dpt. P. Wks., Hunter Bldg., engrs.

Ont., Toronto—SCHOOL OF NURSING—University of Toronto, Simcoe Hall, Toronto, plans by Allward & Gouinlock, 57 Bloor St. W., Toronto, Ont., 2 story, bsmnt., L-shaped, 104x165 ft., poured concrete foundation, brick, concrete school of nursing $800,000. A. D. LePan, supt. of bldgs. CD 12/8/50.

COMMERCIAL BUILDINGS

Ala., Selma—COTTAGES—Alabama Methodist Children's Home, c/o Geo. P. Turner, archt. American Life Bldg., Birmingham, 2 cottages, $500,000.

Calif., Petaluma—HOSPITAL—Petaluma Hospital Dist. Henry X. Jackson Dist., consultant, Petaluma, $970,000 bond election May 6, 50-bed hospital at Oak Hill Park. CD 3/10/48.

▲ Calif., San Diego—HOME—San Diego Methodist Home Corp. c/o Walter C. See, archt., 4460 Park Blvd., Mountain View Manor (Home for the Aged) 5 major bldgs., 30 cottages, infirmary, dining hall, administration bldg. $4,000,000.

Colo., Colorado Springs—SHOPPING CENTER—Three Eagles Co., 701 W. Cheyenne Rd., plans by Earl A. Deits, archt. and engr., 413 Mining Exchange Bldg., shopping center, Cheyenne Blvd. and 8 St. $500,000.

Del., Wilmington—SYNAGOGUE, etc.—Congregation Beth Emeth 911 Washington St., Wilmington, plans by Bloch & Hess, 18 E. 41 St., New York, N. Y., synagogue and school, $616,000. CD 7/7/50.

▲ D. C., Wash.—STORE—Sears, Roebuck Co., 4500 Wisconsin Ave. N.W., plans by Ballinger Co., 121 N. Broad St., Phila., Pa., retail department store. $2,700,000. CD 3/24.

▲ Fla., Hallandale—APARTMENT UNITS—Peter Freund, c/o Maurice S. Weintraub, archt., 235 Lincoln Rd., Miami Beach, 170 apartment units. Approx. $1,000,000.

Ia., Mount Vernon—GYMNASIUM—Cornell College, Mount Vernon, gymnasium, $500,000.

Md., Towson—SCHOOL and CONVENT—Immaculate Conception Parish, Baltimore and Wares Aves., plans by Gaudreau & Gaudreau, 330 N. Charles St., Baltimore, brick, concrete, steel catholic high school and convent addn. $500,000, J. L. Faisant & Assoc., 21 W. 25 St., Baltimore, struct. engrs., Egli & Gompf, Inc., 1019 N. Calvert St., Baltimore, mech. engr. CD 11/15/46.

▲ Mass., Spencer—MONASTERY—St. Joseph's Abbey, Alta Crest Rd., plans by Harry L. Meacham & Assoc., N. Main St., Millbury, 1 story, 20x26 ft. library, 1 story, 24x32 ft. refectory addn., 26x54 lay brothers chapter house and cloister; 2 story, 70x186 ft. stone dormitory and cloister; 1 and 2 story, 17x26 ft., 40x68 ft. wing, professed choir dormitory and cloister house; 1 story, 67x180 ft. church. $1,000,000. CD 10/4/49.

▲ Mich., Lansing—HOSPITAL—Edward W. Sparrow Hospital, Bd. Trustees, Walter Foster, chn., 1215 E. Michigan St., plans by Ollie J. Munson, 409 Wilson Bldg., 5 story, brick, steel, concrete T-shaped hospital addn., incl. addnl. floors East and West wings, nurses home addn., power plant, kitchen imprvs. $3,000,000. CD 6/1/51.

Minn., Minneapolis—STUDENT CENTER—Newman Hall, 1228 Fourth St. SE, Rev. L. Cowley, 805 Second Ave. S., plans by Tolz, King & Day, 1501 Pioneer Bldg., St. Paul, student center and chapel, University and 17 Aves. southeast. $524,500.

N. Y., Brooklyn—APARTMENT—Henrietta Berfond, 79 Brighton 11 St., Zone 24, plans by Seelig & Finkelstein, 153 Pierrepont St., Zone 2, 6 story apartment, 201-23 Boardwalk. $810,000.

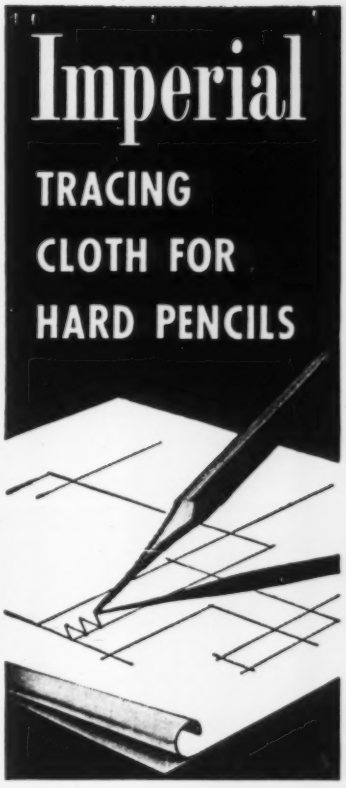
N. Y., New York—SCHOOL—Roman Catholic Church of Our Blessed Lady, 1531 E. 233 St., Zone 66, plans by Anthony J. DePace, 151 W. 46 St., Zone 19, 2 story school, Dyre Ave. and 233 St. $500,000.

▲ O., Cincinnati—HOMES—Cincinnati Community Development Co., 2515 Burnet Ave., plans by Robert B. Schildknecht, 31 E. 4 St., seventy-106 one-family row type 17x26 ft. frame homes, Erie Ave. and Dunning Pl., Madisonville. $1,000,000.

Pa., Castle Shannon—OFFICE, etc.—Manufacturers Light & Heat Co., Union Trust Bldg., Pittsburgh, plans by J. P. McCann, c/o owner, 3 or 4 story bsmnt., brick office and service center. $500,000.

▲ Pa., Phila.—HOTEL—Clinton Hotel Corp., c/o Samuel Elgart, 1606 Locust St., rebuild hotel. $1,000,000.

▲ Pa., Willow Grove—DEPARTMENT STORE—Moe Hankin & Perch Hankin, York and Easton Rds., Willow Grove, plans by Thalheimer & Weitz, 1325



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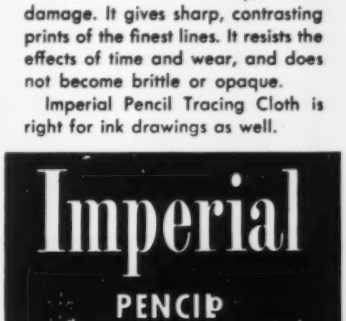

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Walnut St., Phila., department store. $1,000,000. CD 3/22/46.

Tex., Big Spring—OFFICE—Cosden Petroleum Corp., Box 1311, plans by David S. Castle Co., 1082½ N. 1st St., 6 story brick, hollow tile, concrete frame, stone trim office, pier and beam fdn. $600,000.

▲ Tex., Houston—BANK and OFFICE—Fannin State Bank, Main St. Rd. and Holcombe Blvd., 12 story bank and office. $2,000,000.

▲ Tex., Houston—STORES—Seven-Eleven Food Stores, 2522 McKinney St., food stores. $2,000,000.

▲ Tex., Houston—DWELLINGS—Whipple Constr. Co., 2436 Bissonnet St., Job. No. 5, 100 low-cost frame dwellings, $490,000; Job. No. 6, 90 low-cost frame dwellings, $450,000; Job No. 7, 70 low-cost frame dwellings, $350,000; Job. No. 8, 125 low-cost frame dwellings, $625,000.

▲ Tex., Houston—Y.M.C.A. BUILDINGS—Young Mens Christian Assn., c/o Edward J. Mosher, chn. Bldg. Com., 1600 Louisiana St., Bigby St. Y.M.C.A. bldg. for Negroes, $711,963; East End Y.M.C.A. Bldg., $711,963; Northwest Y.M.C.A. Bldg., $300,000; Southwest Y.M.C.A. Bldg., $300,000; North Side Y.M.C.A. Bldg., $300,000, all foregoing masonry constr.; 55-acre camp site on Tom Ball Rd. 24 mi. north of here for Negroes, near here. $90,000.

▲ Tex., Laredo—HOUSING—Federal Housing Admin., 610 S. Flores St., San Antonio, 200 "rental" housing units for Laredo Air Force Base personnel. $1,500,000; 50 "sales" housing units, $375,000.

▲ Tex., Rockdale—HOUSING—Federal Housing Admin., 610 S. Flores St., San Antonio, 50 rental housing units, $450,000; 80 "for sale" housing units, $600,000.

▲ Wis., Madison—SHOPPING CENTER—H. Shanedling Sons Corp., 1201 S. Turners Cross Rd., Minneapolis, Minn., plans by R. Becker, 1645 Hennepin Ave., Minneapolis, Minn., (14 stores) shopping center, $1,000,000

Wis., Milwaukee—HOME—Milwaukee Protestant Home for Aged, 2449 N. Downer Ave., Zone 11, plans by G. J. De Gelleke, 152 W. Wisconsin Ave., Zone 3, home for aged addn. $900,000. CD 6/19/50.

Que., St. Germain De Grantham—CHURCH—Parish of St. Germain De Grantham, Rev. R. Salois, cure., church, Approx. $500,000.

INDUSTRIAL BUILDINGS

▲ Calif., San Francisco—PLANT—Pacific Neo Gravure Corp., 2 and Townsend Sts., plant addn., $2,000,000.

Ga., Atlanta—PLANT—Simmons Plating Works, 219 Pryor St., plant addns. $600,000.

▲ Ga., Brunswick—PLANT—Hercules Power Co., Brunswick, chemical plant addns. $1,000,000.

▲ Ga., Griffin—MILL—Dundee Mills, Griffin, mill addns. $1,000,000.

▲ Ga., Waycross—PLANT—Taylor-Colquitt Co., Waycross, plant addns. $1,000,000.

▲ Kan., Parsons—PLANT—The Kansas Gas & Electric Co., c/o Murray Gill, pres., Parsons, plant expansion on Neosho River, $10,000,000.

N. J., Pennsauken—PLANT, etc.—U. S. Steel Products Co., 30 Rockefeller Plaza, New York, N. Y., plant and offices $700,000. CD 8/13.

▲ Tex., Bronte—PLANT—Lone Star Producing Co., 1915 Wood St., Dallas, natural gasoline plant, near here. $3,000,000.

▲ Tex., Pasadena—CHEMICAL PLANT—Diamond Alkali Co., Box 686, addnl. organic chemical plant units. $5,000,000.

▲ Que., Beauport East—PLANT—Atlas Co. Ltd., c/o A. Viau, City Hall, Quebec City, Que., cement plant, $1,000,000. M. Gilbert, 31 MacMahon St., Quebec City, Que., engr. CD 1/21.

UNCLASSIFIED

Minn., St. Paul—PARKING RAMP—Geller & Kieffer, c/o L. Johnson, archt., 317 Hamm Bldg., 2 story bsmnt., 250x300 ft. parking ramp, Robert St. and Kellog Blvd., $500,000.

▲ Texas, Louisiana, Mississippi, Tennessee and Kentucky—GAS PIPE LINE—Gulf Interstate Gas Co., c/o Panhandle Eastern Pipe Line Co., 120 Broadway, New York, N. Y., 1,000 mi. 30 in. welded joint gas pipe line to transport gas for the Columbia Gas System, Inc. $100,000,000.

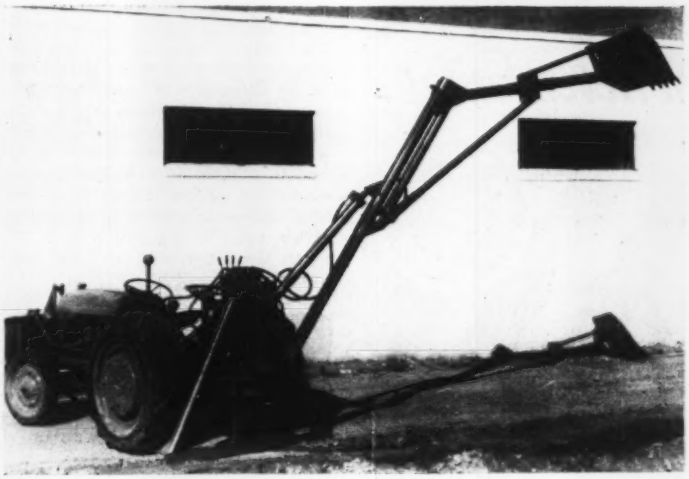
Texas—OIL PIPE LINE—Lone Star Gas Co., 1915 Wood St., Dallas, 35 mi. 12 in. crude oil pipe line from Page Field in Schleicher Co. to points in Schleicher and Sutton Counties. $625,000.

▲ Utah and Idaho—OIL PIPE LINE—Salt Lake Pipe Line Co., C. E. Finney, Jr., pres., North Salt Lake City, Utah, 8 in. diam. steel oil pipe line between Salt Lake City, Utah and Boise, Idaho. $8,000,000.

B. C., Steveston—FISHING HARBOR—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., fishing harbor, $500,000. R. Blais, c/o owner, engr.

Man., Winnipeg—TELEVISION STUDIOS, etc.—Canadian Broadcasting Corp., 1425 Dorchester St., W., Montreal, Que., converting Pigott Bldg. at 543 Portage Ave., incl. television and radio studios to serve Western Canada, $750,000.

Ont., Fort William—HARBOR IMPRVS.—Dpt. P. Wks., Hunter Bldg., Ottawa, harbour imprvs. Approx. $906,000. R. Blais, c/o owner, engr.



Heavy-duty ripper joins monster class

Shown here raised to its truck-filling height of 10 ft, this heavy-duty ditcher joins the Shawnee line of attachments for Ford, Ferguson or Ford-Ferguson tractors. Thus the tractor is an even more versatile tool than when used with the lightweight ditcher, front and loader or 'dozer attachment.

The new model is able to swing in a 160 deg. arc behind the tractor. It can reach 14 ft behind the digger frame and digs 9 ft 6 in. deep with standard bucket and 10 ft deep with an hydraulic bucket. A unique engineering design enables tremendous loading ability and fast dumping action. This design of the hydraulic system is such that it loads the bucket with a push stroke of its hydraulic cylinder, applying hydraulic power to leverage linkage which results in great power. The unit is available with 12, 16, 18 or 20-in. buckets. The equipment is designed and built by the SHAWNEE MANUFACTURING COMPANY, TOPEKA, KANSAS.

Computers simplify pipe layouts

Pipe layout is simplified and time can be saved with new, accurate computers shown above. Engineers, piping foremen, draftsmen, welders and sheet metal workers can make rapid layouts—right on the job—of pipe bends up to 126 deg. Plastic rigid sheet, used in making the long pointers, insures the same accurate reading under all weather conditions.

The computer (top photo) gives direct readings in steps of one degree or less, on pipe diameters from 1 to 20 in. The circle divider (bottom photo) gives instant reading of circumference divisions from $\frac{1}{2}$ to $\frac{1}{8}$ in. in fractions of an inch for any circle up to 72 in. in diameter. Both instruments are available in folding type for field use and flat type for the shop. Both measure 12 in. square flat, 12 by 4½ in. folded and ready to fit pocket or tool box. Made of Vinylite plastic the charts are resistant to stains and smudging. INTERSTATE SALES COMPANY, 123 EAST 18TH STREET, NEW YORK 3, N. Y.

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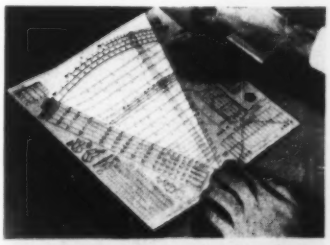

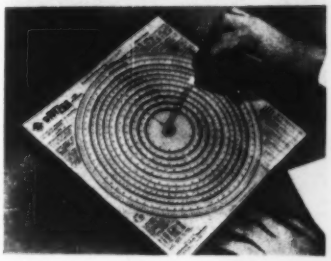

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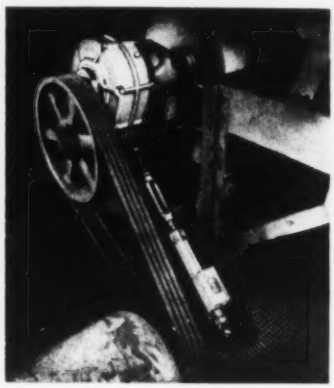


Big speed reducer added to Dodge line

The speed reducer shown in the photo above is a new double reduction shaft-mounted affair with capacity to 43 hp and output speeds from 12 to 110 rpm. The new No. 7 brings to eleven the number of sizes in the Dodge Torque-Arm line. They're divided in two series, single and double reduction, with capacities from 1 to 43 hp and output speeds from 12 to 330 rpm. In the accompanying photo it's shown mounted on the shaft of a solid steel head pulley on a belt conveyor, complete with a Tri-Matic overload release. In the event of overload the anchoring arm release trips and instant action loosens belts, cuts off power and gives an alarm. Dodge Manufacturing Co., Mishawaka, Indiana.

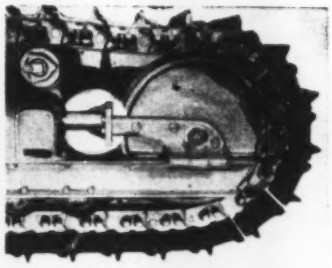
New Moto-Sweeper has triple action

An entirely new triple action sweeping principle is possible with the Commander Moto-Sweeper with dual brushes arranged in tandem, together with vacuum dust control. These dual brushes turn in opposite directions. The front brush, moving clockwise,

throws the heavier debris upward into the path of the counter-clockwise rear brush which deposits it in the hopper. In this way none of the refuse can be thrown forward and underneath. The dust in turn is drawn upward and pocketed by a powerful vacuum system. The heavy duty machine will pick up dirt, nails and refuse of all kinds found in most factories, warehouses, garages, docks, railroad platforms, airports, municipalities, and on ramps, sidewalks and buildings under construction. A side brush for walls is optional and it moves the litter into the path of the dual brushes. Only 34½ in wide, it can cover 35,000 to 40,000 sq ft per hr and is available from THE MOTO-MOWER COMPANY, MOTO-SWEEPER DIVISION, DETROIT 1, MICHIGAN.

Hardboard panel is easily worked

A new, light density ¼-in hardboard panel called Thriftwood has been designed for general interior use such as wallboard, underlayment and cabinet work. It's an all wood panel of Douglas fir fibers which are refined, treated and welded together under heat and pressure. It has enough strength and stiffness for interior wall construction or industrial or fabrication work, and it's easily sawed, nailed, glued or planed. Other advantages are finishing, hard-wearing surface and ease of application. Standard panel sizes are 4x4, 4x6 and 4x8 ft, available through Forest Hardboard distributors. FOREST FIBER PRODUCTS COMPANY, 316-14 PACIFIC BUILDING, PORTLAND 4, OREGON.



Hydraulic track adjuster for crawler tractors

The attachment shown here is a hydraulic track adjuster available for all models of Caterpillar, Allis-Chalmers and International crawler tractors, and called the Hydrajuster. According to the manufacturer, a few shots from a grease gun will take up any slack, eliminating bolt and nut adjustments. Field tested in over 500 installations

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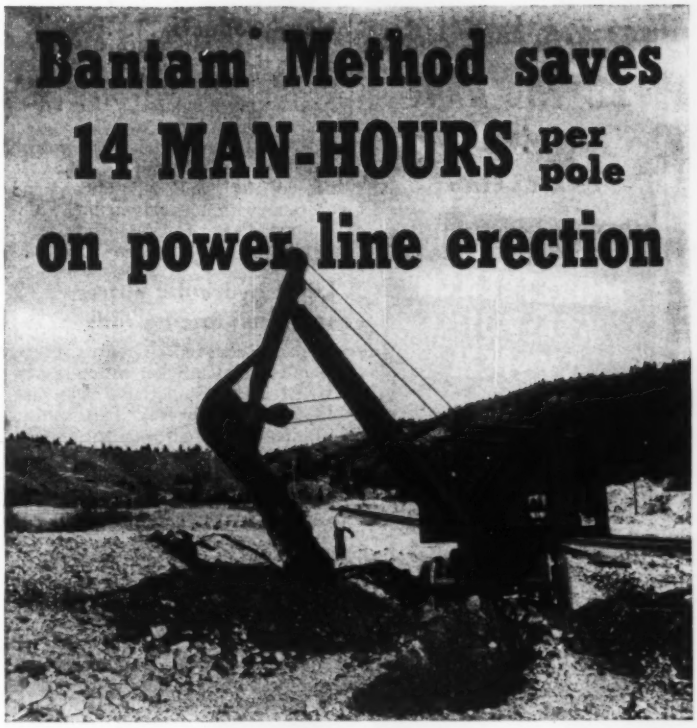
Bantam Method saves 14 MAN-HOURS per pole on power line erection



Idaho Power Co., Boise, Idaho, reports it used to take *2 men 8 hours to install one 65' power transmission pole,* including hand excavation, setting and backfilling. Now one Bantam Back Hoe and helper dig, set and backfill *8 poles per day* — a saving of 14 man-hours per pole. Poles are 600' to 700' apart and each requires about 7 cu. yds. of excavation, ranging from soil to heavy gravel.

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New products . . .

during the last year and a half it's claimed that the Hydrajuster will pay for itself in six months in time saving alone. Once the tracks have been broken it takes about 1½ hours for installation, approximately the same time needed for full adjustment and checkup with the old method. MACHINERY PARTS SALES CORPORATION, P. O. Box 7682, DALLAS, TEXAS.

Light hydraulic cutter snips reinforcing rods

Primarily designed to replace larger, more cumbersome bolt cutters, a new Model 200-A Guillotine weighs only 12 lb and is 21 in long. It cuts up to ½-in reinforcing rods with ease and the maker claims that its lightness and improved handling characteristics will result in faster production and less operator fatigue. Features include a pressure of 8,500 psi and a dual ratio pump that combines rapid traverse with high power to minimize cutting time. Manco engineers say that it minimizes any tendency on the part of the operator to twist the unit while cutting, this twisting motion being the major cause of bolt cutter breakage. Blades are of alloy tool steel and easily sharpened. THE MANCO MANUFACTURING COMPANY, BRADLEY, ILLINOIS.

New product briefs . . .

Roof Decks and Insulation—This 12-pager describes vermiculite concrete and its uses in a variety of roof construction. Highly illustrated with photos and sketches, it describes the physical properties of the concrete and specifications for several types of installation. ZONOLITE COMPANY, 135 SOUTH LA SALLE STREET, CHICAGO, ILLINOIS.

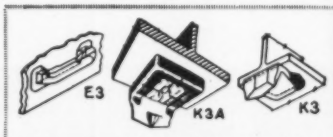
A **4,000-gal bituminous distributor** has been built to specifications by **Roscoe Mfg. Co. of Minneapolis,** one of the largest ever made by the company. The fully-enclosed, streamlined distributor is of "frameless" semi-trailer, tandem-axle construction. Known as Model RQE-TT, it sports an 18-ft full-circulating Rosco spray-bar.

A new **chemical called Mabros 66 is added to lube oil and grease** at the rate of ¼ oz per 5 quarts and used in gas or diesel engines to increase oiliness, up performance; prevent sluggishness, carbon, gum and sludge. Containing 100% detergent properties, it's made by **Phillips Scientific Laboratories, 23-E Garden Terrace, North Arlington, New Jersey.**

Diamond Core Drilling

CORE BORINGS for Foundations, Dams, Bridges and all Heavy Structures
GROUT HOLES

Tinney Drilling Co.
Grafton, W. Va.



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Saxe Welding Connection Units position and secure structural parts to be welded.
Clip K3A permits an adjustable connection.
These widely used units eliminate all hole punching and, with welding, produce the most economicol, safe and quickly erected structural frame.
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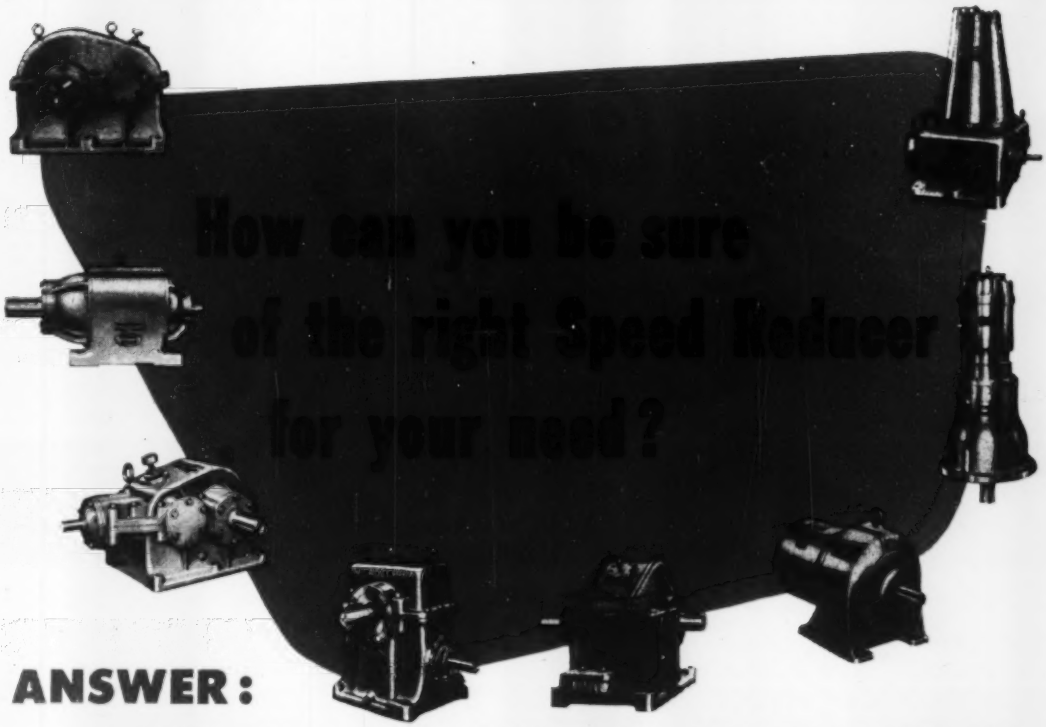

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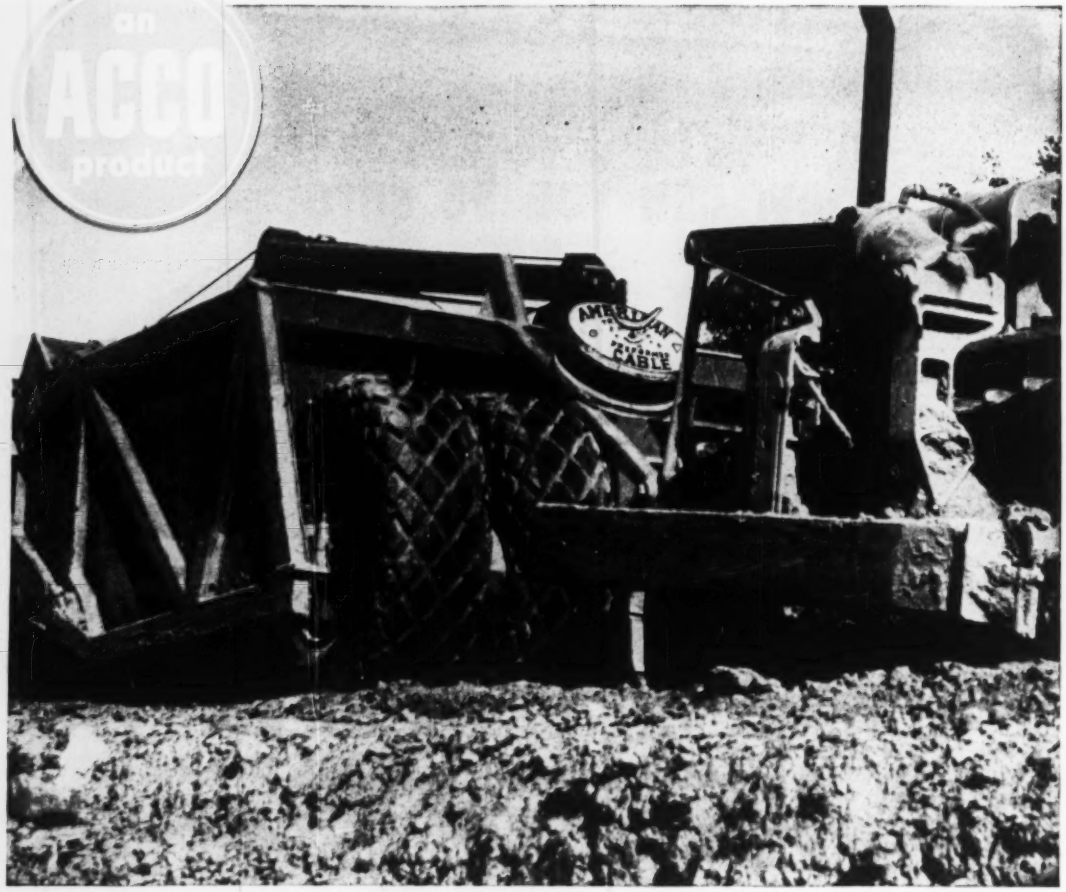

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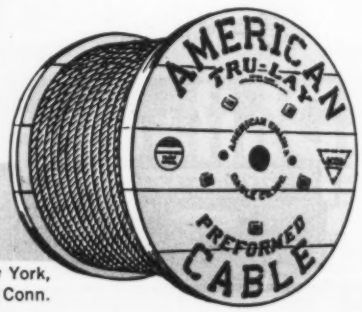

ACCO

TRADE MARK

Wilkes-Barre, Pa., Chicago, Denver, Houston, Los Angeles, New York, Odessa, Tex., Philadelphia, Pittsburgh, San Francisco, Bridgeport, Conn.

PUBLICATIONS

Adjustable steel shores—Six step-by-step pictures in the center fold of this booklet show the proper methods of erecting primary shores, intermediates, joists, ties and decking for concrete forming. The shores are adjustable, with screw threads pitched 4 to the inch; thus each revolution of the jacking arm raises the telescoping section exactly ¼ in. An extension on the underside of the adjustment nut cleans concrete, grit and dirt from threads of the tube as changes in shore height are made. Four types range from 5 ft 7 in. to 15 ft 0 in. in height and carry working loads 2,050 to 8,210 lbs. ACROW INC., 510 N. DEARBORN STREET, CHICAGO 10, ILLINOIS.

Carlon Plastic Pipes—This 16-pager is full of good info on various Carlon pipes, tubing, fittings and well casings. Physical properties, chemical resistance, working pressures and specifications of each are included along with fittings and accessories for each type, breaking down into separate units. One type can safely carry liquids for consumption, another cannot. One is affected by freezing of water it carries, another is not; types EF, E, C, TL and T are described fully and the booklet ends with eight special points of caution. CARLON PRODUCTS CORPORATION, 10151 MEECH AVENUE, CLEVELAND 5, OHIO.

Milli-Second Delay Blasting—By eight different methods is the content of a 20-page manual by Atlas Powder Co., and is of interest to anyone interested in quarry blasting, coal stripping, open pit shooting or aggregate production for construction projects. Progressive and alternate milli-second delay techniques are illustrated with diagrams of detonation patterns. ATLAS POWDER COMPANY, WILMINGTON, DELAWARE.

Sling Handbook—Anyone concerned with slinging loads will be pleased with a new 48-page Sling Handbook and Riggers' Manual describing Tuffy ropes. Dimensions, loads, eye sizes, tuck lengths and all the rest of the data needed are included for 12 different sling types. Thirty illustrations will help with your proper choice of the right sling for the right job. Visual instruction takes up 24 of the 48 pages with instructions on seven different kinds of splices, attachment of ferrules, thimble clamps and sockets. UNION WIRE ROPE CORPORATION, 2100 MANCHESTER AVENUE, KANSAS CITY 3, MISSOURI.

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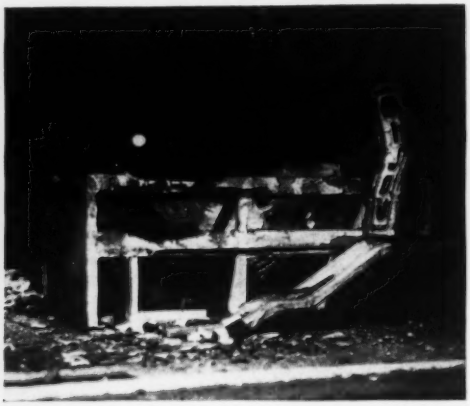
ATOM DESTRUCTION—Model wood frame dwelling shows probable bomb damage.



BOMBED BIJOU—Model of bomb-damaged two-story theatre on FCDA's "Street of Ruins" at Olney, Md.

FCDA Builds "Rescue Street"

"Rescue street"—one of the most unusual construction jobs ever to face a building contractor—is underway at the Federal Civil Defense Staff College, Olney, Md.

At Olney, an entire city street, complete with stores, a theater, two-story dwellings, apartments and a five-story business structure is being erected—in a partially demolished condition.

Store fronts blown out, floors of houses partly in basements, girders and beams twisted and contorted at odd angles, and piles of rubble, dirt and broken concrete cluttering access to buildings—all will be found on Rescue street. Rescue training in the aftermath of atomic explosion is the purpose of the FCDA's project.

Yet all buildings are being constructed according to rigid engineering principles of stress, weight and use of tested materials. Designs were developed from studies made of high-explosive bombings in Great Britain and Germany as well as study of effects of atomic bombings at the Japanese cities of Nagasaki and Hiroshima.

Striving for structures typical of most urban areas in the United States, Rescue street includes an outdoor demonstration area, two-story and basement wood-frame house, two-story and basement row house, two-story office, store and theatre, three-story and basement office and apartment building and five-story reinforced concrete building.

• **Demonstration Area**—The outdoor demonstration area with brickwall and steel beam sections will provide practice in cutting concrete beam and slab sections, wall sections for shoring practice, debris piles, plaster, metal and wood lathe and various types of building furnishings arranged to provide practice in moving and handling debris.

The two-story basement wood-frame house, will provide instruction in tunneling in earth and debris. In the basement, a simulated electric service with voltage reduced will mildly "shock" the rescue trainee if he is careless or mishandles the equipment.

The two-story and basement row house, is another feature of Rescue street. FCDA experts conclude that these walls, under bomb attack, would not disintegrate into small bits but would break into large sections with side walls "pancaking" into horizontal layers held apart by debris and furniture. Water will pour out of simulated broken mains, flooding portions of the rescue area while leaks in gas pipes will saturate other areas.

The Texas City explosion in 1948 provided material for examination of explosion damage to the three-story basement office and apartment building. Steel skeleton construction is used. As exterior walls in the structure are light, large quantities of rubble will be present—floor panels will collapse and partitions and plaster will fill each leven with debris. In the basement, broken water, gas, electric and sewer installations will confront the rescuers.

• **Public Assembly Building**—Still another familiar American structure going up at Olney is the office-store-theatre-type building, two stories high in front with high-ceilinged garage or workshop in the rear. According to the FCDA, the public assembly-type building is unsuited to withstand effects of atom bomb explosions—the principle danger lying in the disintegration or movement of walls causing a collapse of roof and floors and entrapping occupants.

A five-story reinforced concrete building with columns, beams, floor slabs, roofs and some exterior walls of reinforced concrete has been constructed as typical of large public buildings today. Extrication of trapped persons, complex because of the number of stories through which rubble falls and accumulates, is aided by mobile cranes and booms. FCDA experts note that similar Japanese reinforced concrete buildings designed to resist earthquake withstood atomic blasts fairly well. In an atomic blast the outside frame would probably remain, asserts the FCDA—damage would consist mainly of twisted steel columns, dislocation of cross beams and the falling away of walls between them.

City Park Garage, Pershing Square, Los Angeles, Calif.; Archt. Stiles Clements, Associated Architects & Engineers; Consltg. Engr.—Murray Erick Associates; Contrs.—Ford J. Twaits Co.; Morrison-Knudsen Co., Inc.; and T-S Construction Engineers, Inc.; 50,000 Cu. Yds. of Pozzolith Ready-Mixed Concrete Supplied by Graham Brothers. All companies of Los Angeles, Calif.

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To a long list of outstanding structures built with Pozzolith Ready-Mixed Concrete has been added this 2000-car underground garage.

Use of Pozzolith Concrete assured designed strength . . . also resulted in quicker re-use of slab shoring material — reducing costs and speeding up work; good concrete surface — holding down finishing cost of slabs.

Pozzolith's cement-dispersing, water-reducing and air-entraining action (making available the optimum amount of air) produces these further benefits:

1. Reduced Shrinkage — for less cracking.
2. Lower Permeability — for less "waterproofing". . . later.
3. Increased bond-to-steel — for better construction.
4. Greater Durability — for lower maintenance costs.

Full information and Pozzolith booklet on request.

Over 600 Leading Ready-Mixed Plants Are Producing Pozzolith Ready-Mixed Concrete

CEMENT DISPERSION ALSO KEY TO SUPERIORITY OF THESE MASTER BUILDERS PRODUCTS

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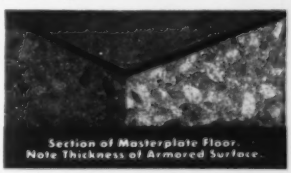
Masterplate produces "iron-clad" concrete floors with 4-6 times longer life; also spark-resistant and static-disseminating. Non-colored and 11 colors. For new floors and resurfacing.



Section of Masterplate Floor. Note Thickness of Armored Surface.

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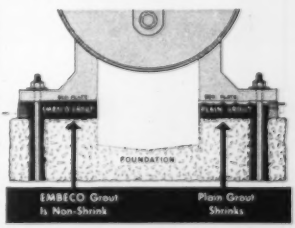
Embeco (1) produces flowable, **non-shrink**, ductile grout which . . . (2) gives full, level, **lasting** bedplate contact . . . (3) helps avoid costly shutdowns.



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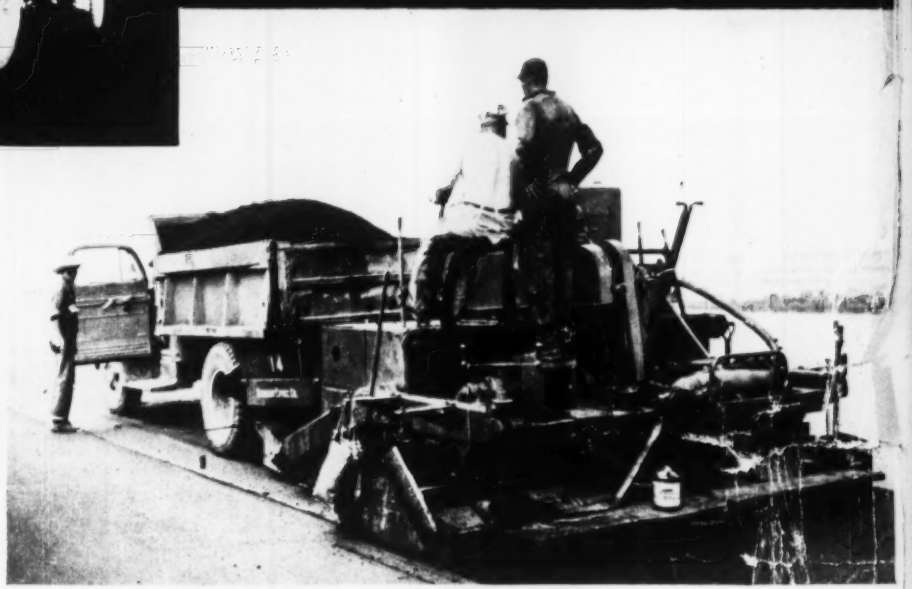
CLEVELAND 3, OHIO — Subsidiary of American-Marietta Company — TORONTO, ONTARIO

Fortifying part of Colorado's main north-south highway



U. S. Route 85, north of Pueblo, Colo., receiving a new wearing surface of hot-mix Texaco Asphaltic Concrete. A blade grader was used to spread the asphalt leveling course, while a mechanical paver put down the asphalt wearing surface. Contractor, the Schmidt Construction Company.

Increasingly heavy traffic on U. S. Route 85, north of Pueblo, Colo., made some type of improvement mandatory last year. How to give the highway the extra durability it required, while holding cost to a minimum, was the Colorado Highway Department's problem.

The new plant-mixed Texaco Asphaltic Concrete wearing surface, which has been laid over US-85's old concrete and stabilized gravel, meets the State's requirements on both points—increased durability and moderate cost.

Texaco Asphaltic Concrete owes its exceptional durability to its resilience under impact, its freedom from joints, immunity to ice control chemicals, plus its waterproof quality and low susceptibility to varying temperatures. Use of the existing pavement on this Colorado highway as foundation for its new Texaco asphalt surface made possible a substantial saving over entirely new construction.

A pavement's performance depends upon a number of factors. One of the most important of these is the quality of the materials which go into its construction. Not only are Texaco Asphaltic products refined from scientifically selected crudes, but they are backed by almost 50 years of experience in supplying asphalt for America's roads and streets.

Two helpful booklets on Asphalt street and highway construction of all types can be obtained free by writing our nearest office.

Faithfully yours 50 *for Fifty Years*

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